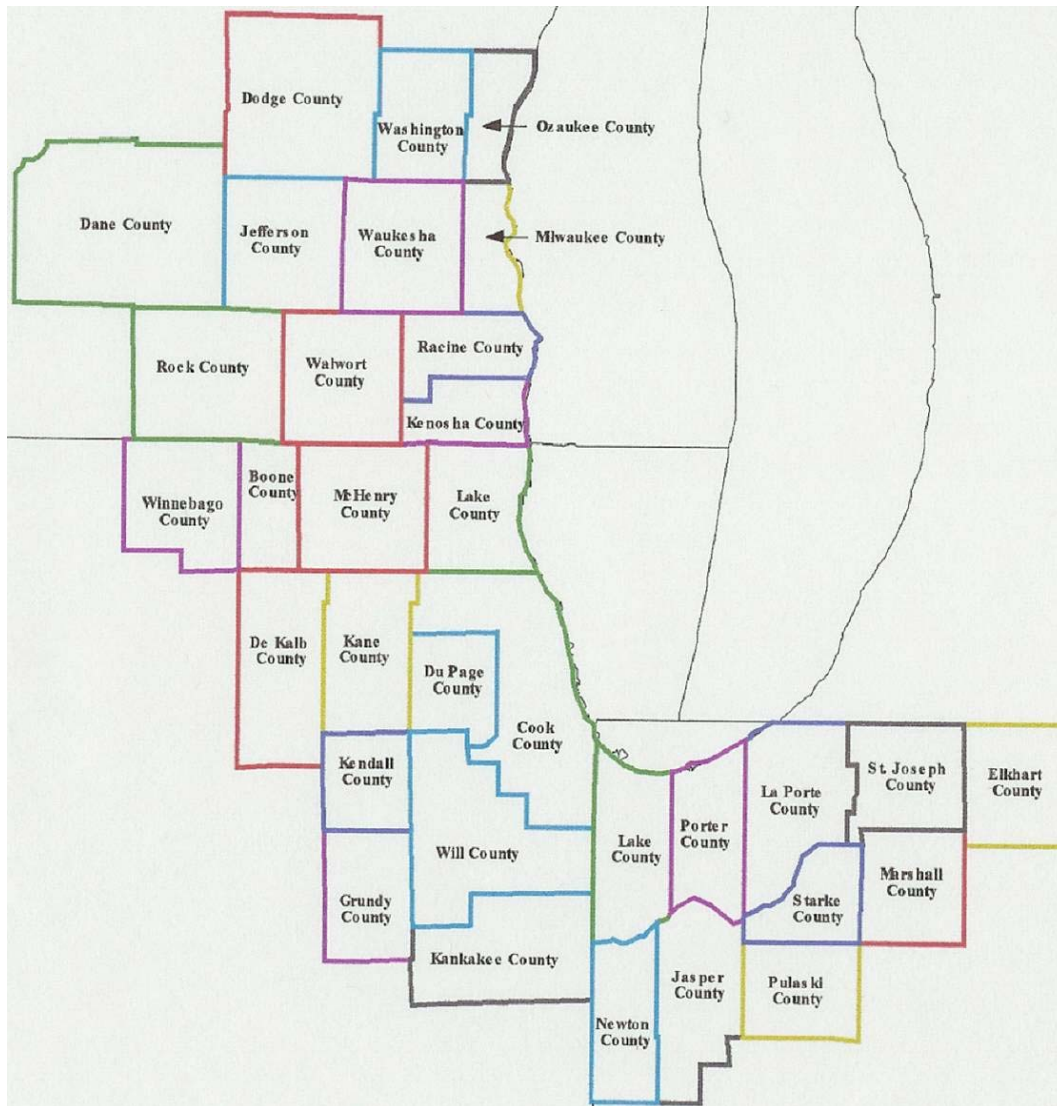


Region 54 SOUTHERN LAKE MICHIGAN 700 MHz Plan



DRAFT 10/08

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THE REGION 54 (SOUTHERN LAKE MICHIGAN) REGIONAL PLAN FOR PUBLIC SAFETY'S ALLOCATION AND USE OF RADIO FREQUENCIES IN THE 769-775/799-805 MHZ BANDS

Executive Summary

Region 54 consists of 33 counties surrounding Lake Michigan in Illinois, Wisconsin, and Indiana. Region 54 developed its Plan over an eight-year period, beginning in 2000. The Region had participation from all states and 33 counties within the Region. This included fire, police, emergency medical, emergency management, including secondary responders and federal agencies with a presence in the Region; as well as non-voting radio equipment manufacturers, radio dealers, and consultants. Although meetings were often held in Chicago, which is a central location, to encourage all possible entities to attend, planning meetings were also held in other parts of the Region. The Region used a website to post information and documents for review by Regional Planning Committee (RPC) members. List serves were also used to disseminate information and documents for review and input by all members.

The three states within Region 54 have elected to administer the 700 MHz interoperability channels and have formed or plan to form State Interoperability Executive Committees. Region 54 has representatives on or participates in Wisconsin and Indiana's state SIECs. The Illinois SIEC will involve the RPC on an as-needed basis. Region 54 has established minimum interoperability channel requirements for all radios within the Region (See Section 6.10)

Region 54 will review applications for 700 MHz general use channels on a first-come, first-served basis. If more requests are received than there are frequencies available, the Region will use the application prioritization matrix explained in Section 9. Once the application has been reviewed and approved by the RPC, it will be forwarded to the frequency coordinator designated by the applicant.

The Computer Assisted Pre-coordination Resource and Database (CAPRAD) will be used for frequency selection and coordination. The RPC will update the CAPRAD as applications are processed, coordinated, and granted. Region 54's 700 MHz Plan will be modified as necessary as systems are completed.

Concurrence letters from all adjoining Regions are attached to the Plan in Appendix J. Intra / Inter Regional Dispute Resolution Agreements are also included in Appendix J.

1 REGIONAL CHAIRPERSON

The Regional Chairperson is William Carter, Special Technical Advisor, Grundy County Emergency Telephone System Board (ETSB), 111 E. Illinois Ave, Morris, Illinois, 60450. Phone number (312) 497-6802, e-mail: wizard61@hotmail.com.

2 RPC MEMBERSHIP

Membership classes are defined in Article II of the Bylaws (Appendix A). In general, each eligible agency can have as many representatives as they want. Only one representative can vote, however. The Secretary shall maintain a list of members who are eligible to vote. No member is allowed to vote on his/her own agency's application.

2.1 Member Contact Information

Appendix B contains a roster of all voting RPC members with their agency affiliations, contact information, and voting status. Non-voting member information can be requested from RPC Secretary.

2.2 Officers

Article III of the Bylaws defines the officers of the Regional Planning Committee. In brief they are:

- a) Chairman (William Carter, Grundy County ETSB);
- b) Vice-Chairman (Carl Guse, Wisconsin State Patrol);
- c) Secretary (Chris Kindelspire, Grundy County ETSB); and
- d) Treasurer (Craig Lundt, Forest Park PD).

2.3 Subcommittees

Article IV of the Bylaws establishes seven subcommittees of the RPC to develop and implement this plan. They are:

- 1) Rules
- 2) Interoperability
- 3) Membership
- 4) Technical
- 5) Implementation
- 6) Financial
- 7) Regional Conformance Review Subcommittee

3 DESCRIPTION OF THE REGION

3.1 Definition of the Region and Its Boundaries

Region 54, the Southern Lake Michigan Region, is comprised of the geographic area near the southern tip of Lake Michigan. Although there are many rural areas, most of the Region's public safety jurisdictions are within the metropolitan areas of the Gary – Chicago – Milwaukee corridor.

With the exception of the state of Michigan, this Region is the same geographic area with the same political jurisdictions as the National Public Safety Planning Advisory Committee (NPSPAC) 800 MHz Region. Michigan "opted out" as allowed by the FCC in Public Notice DA-01-2112. (See Appendix C.)

Region 54 contains thirty-three counties within the three states of Wisconsin, Illinois, and Indiana. It has a population of 12,745,368 (2000 Census) and a land area of 16,397 square miles. The Region contains four of the "Top 100 Counties in Terms of Capacity Needs" as reported in the *Generation of the National 700-MHz Public Safety Pool Allotments* submitted to the National Law Enforcement and Corrections Technology Center (NLECTC) and National Public Safety Telecommunications Council (NPSTC) on January 31, 2003:

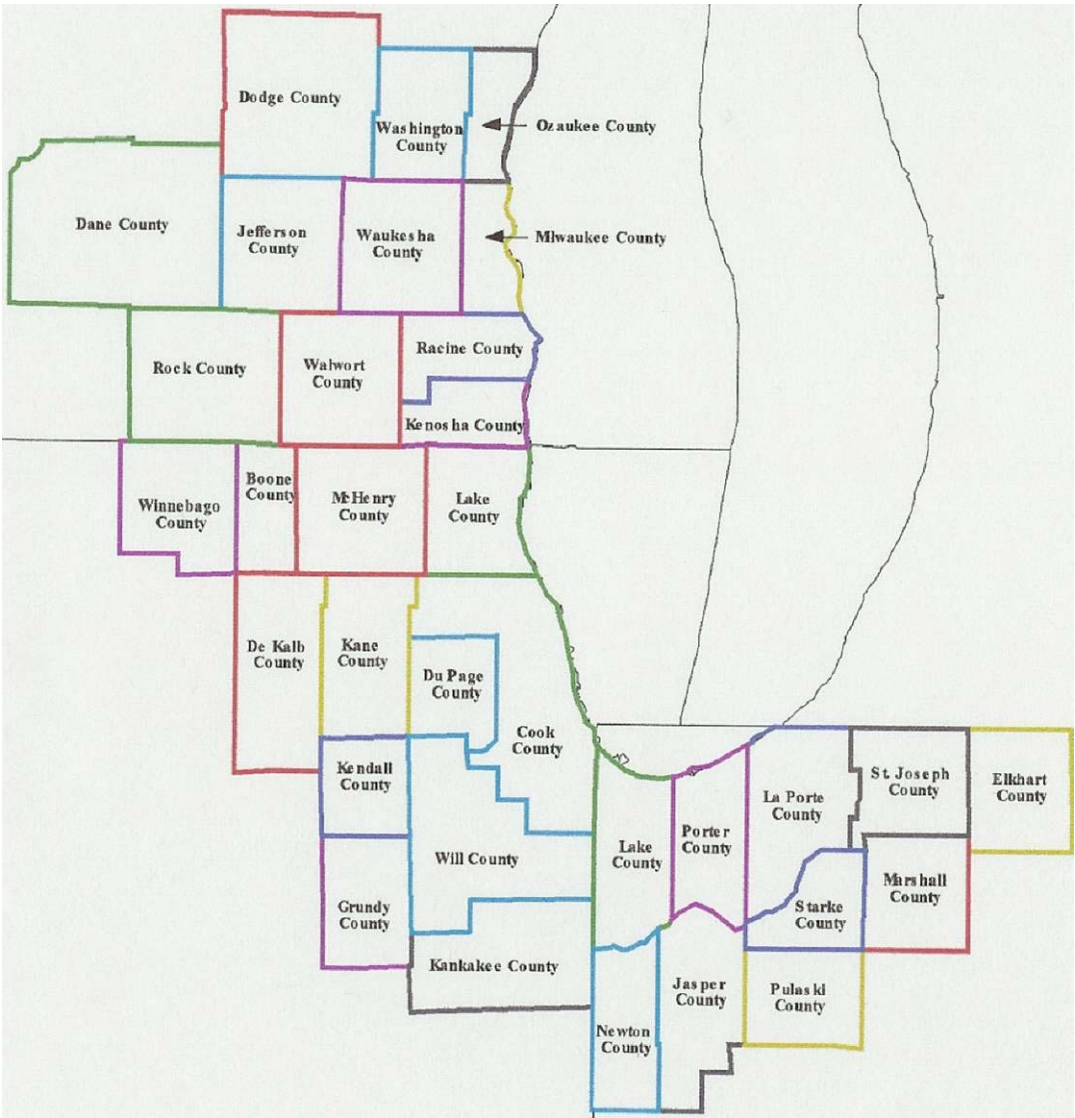
- Cook County (IL) is ranked 3rd with an Erlang total of 964.7525
- DuPage County (IL) is ranked 63rd with an Erlang total of 179.4323
- Milwaukee County (WI) is ranked 70th with an Erlang total of 176.1079
- Lake County (IL) is ranked 89th with an Erlang total of 152.3920

Table 1 lists each county with their associated statistics. Figure 1 shows a map of the county and regional boundaries.

TABLE 1: REGION 54 COUNTY DEMOGRAPHICS

State	Name	Population (2000 Census)	Land Area (mi ²)	Population Density (1/mi ²)	Normalized Capacity Load
IL	Boone County	41,786	281	148.564	0.819%
IL	Cook County	5,376,741	946	5685.580	49.595%
IL	De Kalb County	88,969	634	140.295	1.767%
IL	Du Page County	904,161	334	2710.270	9.224%
IL	Grundy County	37,535	420	89.390	0.829%
IL	Kane County	404,119	520	776.501	5.635%
IL	Kankakee County	103,833	677	153.429	2.020%
IL	Kendall County	54,544	321	170.142	1.037%
IL	Lake County	644,356	448	1439.697	7.834%
IL	McHenry County	260,077	604	430.942	4.058%
IL	Will County	502,266	837	600.121	7.348%
IL	Winnebago County	278,418	514	541.947	4.154%
IN	Elkhart County	182,791	464	394.104	2.904%
IN	Jasper County	30,043	560	53.661	0.752%
IN	La Porte County	110,106	598	184.051	2.056%
IN	Lake County	484,564	497	975.008	6.487%
IN	Marshall County	45,128	444	101.577	0.966%
IN	Newton County	14,566	402	36.247	0.404%
IN	Porter County	146,798	418	351.099	2.388%
IN	Pulaski County	13,755	434	31.717	0.395%
IN	St. Joseph County	265,559	457	580.659	3.910%
IN	Starke County	23,556	309	76.156	0.541%
WI	Dane County	426,526	1202	354.878	6.922%
WI	Dodge County	85,897	882	97.358	1.858%
WI	Jefferson County	74,021	557	132.889	1.488%
WI	Kenosha County	149,577	273	548.250	2.226%
WI	Milwaukee County	940,164	242	3892.061	9.053%
WI	Ozaukee County	82,317	232	354.898	1.336%
WI	Racine County	188,831	333	566.895	2.793%
WI	Rock County	152,307	720	211.400	2.759%
WI	Walworth County	93,759	555	168.840	1.785%
WI	Washington County	117,493	431	272.722	2.014%
WI	Waukesha County	360,767	556	649.357	5.200%
TOTALS					

FIGURE 1: REGION 54 BOUNDARIES



3.2 Description of existing interoperability contracts, compacts, mutual aid agreements, etc.

There are many agreements among the agencies within the county areas regarding mutual aid. For most cases, the agreements that exist consist of an order of who will be requested for assistance and in what order the requests will be made. Again, in most cases, the agreements state that the emergency communication centers will designate the radio channel which will be used to communicate between agencies during the incident.

3.3 Description of the effect the addition of 700 MHz channels and interoperability requirements will have on existing plans.

To address the addition of the 700 MHz interoperability channels, the state governments of Indiana, Illinois, and Wisconsin are each forming or have formed an SIEC (Statewide Interoperability Executive Committee). Region 54 has representatives on or participates in Wisconsin and Indiana's state SIECs. The Illinois SIEC will involve the RPC on an as-needed basis. Region 54 has established minimum interoperability channel requirements for all radios within the Region. (See Section 6.10)

3.4 Overview of Public Safety Entities

The public safety entities that have jurisdiction within Region 54 include federal, state, county, and local police, fire, emergency medical, and other agencies as defined by the FCC's public safety eligibility listed in Section 90.523. Insofar as planning for the allocation and use of the 700 MHz frequencies is concerned, the lead agencies have been the Chicago Office of Emergency Communications (encompassing police / fire / EMS), Illinois State Police, Wisconsin State Patrol, Indiana State Police, FBI, U. S. Coast Guard, Milwaukee Police Dept., Cook County Sheriff, Dane County (WI) Sheriff, plus many local government agencies.

4 NOTIFICATION PROCESS

4.1 Convening of the RPC

The initial meeting of the Regional Planning Committee was convened by Mr. William Carter, the Chairman of the Region 54 800 MHz Planning Committee. This meeting was announced sixty (60) days in advance in a variety of media including the FCC's web site and Public Notices, the Regional Planning

Committee's master email distribution list, APCO websites, and inter-agency notices. Appendix D contains copies of the announcements of the convening meeting held at the Chicago Office of Emergency Communications Center on February 24, 2000.

4.2 Meeting Announcements

Subsequent meeting announcements have been published in a variety of media including: the FCC's web site and Public notices, the Regional Planning Committee's list server, APCO magazine, and inter-agency notices. Appendix D contains copies of the meeting announcements.

4.3 Meeting Comments and Summaries

As work progressed, members exchanged comments among subcommittees primarily through direct e-mails. When ready for review by a broader portion of the membership, drafts of documents were posted on a list server at <http://groups.yahoo.com/group/R54RPC/>. Appendix E contains the summaries and comments of each general membership meeting.

4.4 Native American Notification

To address the notification of Native American tribes, the Membership Subcommittee searched federal and state agency databases for appropriate contact information. While there are several Native American tribes in the states, none are located within the boundaries of Region 54. We confirmed this fact with the U.S. Department of the Interior's List of Federally Recognized American Indian Tribes and Alaska Natives. Thus, Region 54's meeting notifications were not sent to any Native American organizations.

5 REGIONAL PLAN SUMMARY

Guidelines and Procedures for RPC Operation

A copy of the Committee's Bylaws establishing the guidelines and procedures for operation of the RPC is contained in Appendix A.

Procedures for Requesting Channels

The Regional Planning Committee must approve all finalized applications. No application may be changed or revised in any way by any person prior to final submittal to the FCC. See also Section 10 for application requirements.

Procedures for Frequency Coordination

The Regional Planning Committee is a pre-coordination body, utilizing the CAPRAD tool. Upon approval by the Regional Planning Committee, the application is forwarded to the FCC certified coordinator that has been selected by the applicant.

5.1 Guidelines and Procedures for Protection of Incumbent TV/DTV Stations within the Region or Near the Region's Border During the DTV Transition Period

Table 2 lists the known TV stations currently operating on channels 62, 63, 64, 65, 66, 67, 68, and 69 within Region 54. Most of these stations are of low power, secondary status. Thus, they must cease operations if they cause harmful interference when a primary service (i.e., public safety land mobile) comes into operation. The Region will notify those TV stations in a timely manner, requiring them to cease operation.

The Region will employ the methodology described immediately following Table 2 to protect the eligible high power stations during the DTV transition period.

TABLE 2: Region 54 - Chicago Metropolitan TV Stations

State	County	Channel	Call Sign	Location	Latitude	Longitude
IL	Cook County	64	W64CQ	Arlington Heights, IL	41°52'44"N	87°38'10"W
		68	<u>W68DO</u>	Palatine, IL	41°52'44"N	87°38'10"W
		66	<u>WGBO-TV</u>	Joliet, IL	41°53'56"N	87°37'23"W
IN	Elkhart County	65	<u>DW65BL</u>	Goshen, IN	41°36'4"N	85°55'41"W
	Lake County	62	<u>WJYS</u>	Hammond, IN	41°33'10"N	87°47'9"W
	St. Joseph County	69	<u>WRDY-LP</u>	South Bend, IN	41°35'58"N	86°11'7"W
		69	<u>WRDY-LP</u>	South Bend, IN	41°36'55"N	86°11'7"W
		67	<u>DW67CC</u>	South Bend, IN	41°41'53"N	86°9'20"W
		69	<u>WRDY-LP</u>	South Bend, IN	41°35'58"N	86°11'7"W
		69	<u>WRDY-LP</u>	South Bend, IN	41°52'51"N	86°18'13"W
WI	Dane County	63	<u>DK63DS</u>	Madison, WI	42°57'46"N	89°22'45"W
		69	<u>DW69BV</u>	Madison, WI	43°3'9"N	89°28'42"W
	Dodge County	68	<u>WMMF-TV</u>	Fond du Lac, WI	43°50'20"N	88°22'8"W
		68	<u>WMMF-TV</u>	Fond du Lac, WI	43°26'11"N	88°31'34"W
	Milwaukee County	63	<u>W63CU</u>	Milwaukee, WI	43°6'42"N	87°55'50"W
	Rock County	65	<u>W65EE</u>	Janesville, WI	42°41'9"N	89°9'5"W
		65	<u>W65EE</u>	Janesville, WI	42°41'8"N	89°9'4"W

During the DTV transition period, the Region 54 RPC will consider all co-channel and adjacent channel TV and DTV stations within a 160-mile radius of an application. For a public safety system at 500 watts ERP and 500 ft HAAT, co-channel TV/DTV stations can block a 120-mile radius and adjacent channel TV/DTV stations can block a 90-mile radius.

Since base station transmitters are located only on channels 63 and 64, LMR mobile only, TV/DTV protection spacing on channels 68 and 69 may be shorter than LMR base TV/DTV protection on channels 63 & 64.

Public safety applicants can select one of three ways to meet the TV/DTV protection requirements: (1) utilize the geographic separation specified in the 40 dB tables of Part 90.309; (2) submit an engineering study to justify other separations which the Commission approves; or (3) obtain concurrence from the applicable TV/DTV station(s).

5.1.1 Part 90.309 40 dB D/U Tables

The FCC adopted a 40 dB desired (TV/DTV) to undesired (LMR) signal ratio for co-channel operations and a 0 dB desired/undesired (D/U) signal ratio for adjacent channel operations. The D/U ratio is used to determine the geographic separation needed between public safety base stations and the Grade B service contours of co-channel and adjacent channel TV/DTV stations. The D/U signal ratio is used to determine the level of land mobile signals that can be permitted at protected fringe area TV receiver locations without degrading the TV picture to less than a defined picture quality. In other words, the D/U signal ratio indicates what relative levels of TV and land mobile signals can be tolerated without causing excessive interference to TV reception at the fringe of the TV service area.

Desired and undesired contours are not quite the same thing. Desired analog TV contours are defined as F(50,50), meaning coverage is 50% of the places and 50% of the time. Undesired land mobile or interference contours are defined as F(50,10). For Digital TV, the desired contours are defined as F(50,90), while the undesired land mobile contours are still F(50,10).

Land mobile and analog TV services have successfully shared the 470-512 MHz band (TV Channels 14-20) within a 50 mile radius of eleven major cities since the early 1970's due to providing a signal ratio of at least 50 dB between the desired TV signal and undesired co-channel land mobile signal (D/U signal ratio) at a hypothetical 88.5 km (55 mi.) Grade B service contour and an adjacent channel D/U signal ratio of 0 dB at the same hypothetical Grade B service contour. These separation distances also protected the land mobile systems

from interference from the TV stations. In 1985, recognizing that 50 dB D/U was too conservative, the FCC proposed to expand land mobile/TV sharing to other TV channels and proposed that the geographic separation requirements for co-channel operations be based on a D/U signal ratio of 40 dB rather than 50 dB. That proceeding was put on hold pending completion of the DTV proceeding, which has now been completed. In the 470-512 MHz band, the FCC also relied on minimum separation distances based on the various heights and powers of the land mobile stations (HAAT/ERP separation tables) to prevent harmful interference.

Since this simple, yet conservative, method was successful, the FCC decided to use this same method, the 90.309 HAAT/ERP Separation Tables, to administer LMR to TV/DTV receiver protection criteria for the services in the 700 MHz band.

Co-channel land mobile base station transmitters are limited to a maximum signal strength at the hypothetical TV Grade B contour 40 dB D/U below desired 64 dBμ F(50,50) analog TV signal level, or 24 dBμ F(50,10). The FCC adopted a 0 dB D/U signal ratio for adjacent channel operations. Adjacent channel land mobile transmitters will be limited to a maximum signal of 64 dBμ F(50,10) which is 0 dB D/U below the TV Grade B signal of 64 dBμ F(50,50) at the TV station Grade B contour of 88.5 km (55 miles). A typical TV receiver's adjacent channel rejection is at least 10-20 dB greater than this level, which will further safeguard TV receivers from land mobile interference.

The equivalent ratios for a DTV station's 41 dB F(50,90) desired field strength contour are land mobile 17 dB F(50,10) contour for co-channel and land mobile - 23 dB F(50,10) contour for adjacent channel. The tables to protect TV/DTV stations are found in Section 90.309 of the Commission's rules. These existing tables cover co-channel protection based on a 40 dB D/U ratio using the separation methods described in Section 73.611 of the Commission's rules for base, control, and mobile stations, and for adjacent channel stations for base stations based on a 0 dB D/U ratio.

However, the original considerations in 470-512 MHz band under Section 90.309 were different in that mobiles were limited in their roaming distance from the base station (less than 30 miles) and mobiles were on the same TV channel as the base station.

Control and mobile stations (including portables) are limited in height (200 ft for control stations, 20 ft for mobiles/portables) and power (200 watts ERP for control stations, 30 watts for mobiles, and 3 watts for portables). Mobiles and control stations shall afford protection to co-channel and adjacent channel TV/DTV stations in accordance with the values specified in Table D (co-channel

frequencies based on 40 dB protection for TV and 17 dB for DTV) in Section 90.309.

Control stations and mobiles/portables shall keep a minimum distance of 8 kilometers (5 miles) from all adjacent channel TV/DTV station hypothetical or equivalent Grade B contours (adjacent channel frequencies based on 0 dB protection for TV and -23 dB for DTV). This means that control and mobile stations shall keep a minimum distance of 96.5 kilometers (60 miles) from all adjacent channel TV/DTV stations. Since operators of mobiles and portables are able to move and communicate with each other, licensees or coordinators must determine the areas where the mobiles can and cannot roam in order to protect the TV/DTV stations, and advise the mobile operators of these areas and their restrictions.

5.1.2 Engineering Analysis

Limiting TV/land mobile separation to distances specified in the 40 dB HAAT/ERP Separation Tables found in Section 90.309 may prevent public safety entities from fully utilizing this spectrum until after the DTV transition period ends. Public safety applicants will be allowed to submit engineering studies showing how they propose to meet the appropriate D/U signal ratio at the existing TV station's authorized or applied-for Grade B service contour or equivalent contour for DTV stations instead of the hypothetical contour at 88.5 km.

This would permit public safety applicants to take into account intervening terrain and engineering techniques such as directional and down-tilt antennas in determining the necessary separation to provide the required protection. Public safety applicants who use the engineering techniques must consider the actual TV/DTV parameters and not base their study on the 88.5 km hypothetical or equivalent Grade B contour. If land mobile interference contour does not overlap the TV Grade B contour (or DTV equivalent), then engineering analysis may be submitted to the FCC with the application.

This method is most useful with lower power TV stations whose Grade B contours are much smaller than the hypothetical 55 mile (88.5 km) Grade B contour or that have directional patterns.

Note that the 200 ft AGL limitation on 700 MHz control stations is much higher than the 100 ft AGL limitation used at UHF. Limiting control station antenna height and/or ERP may greatly reduce land mobile to TV contour spacing. Also, note that analysis for TV/DTV receivers uses 30 ft (10 m) antenna height whereas analysis for land mobile subscribers uses a 6 ft (2m) antenna height.

5.1.3 TV/DTV Short-spacing

Public safety applicants will be allowed to "short-space" even closer if they get the written approval of the TV stations they are required to protect. Public safety applicants need to determine the station's intended market area vs. its hypothetical Grade B contour area. Alternately, the TV/DTV station may be short-spaced against another TV/DTV station, limiting their area of operation, but not affecting LMR operations.

Instead of each agency negotiating with a TV/DTV station individually, they may want to combine into a single group or committee and negotiate together.

5.1.4 TV/DTV Height Adjustment Factor

In order to protect certain TV/DTV stations which have extremely large contours due to unusual height situations, such as a television station mounted on top of a sky scraper, the FCC incorporated an additional height adjustment factor which must be used by all public safety base, control, and mobile stations to protect these few TV/DTV stations and afford the land mobile stations the necessary protection from the TV/DTV stations. The equation necessary to calculate the additional distance from the hypothetical or equivalent Grade B contour is found in the rules section 90.545(c)(2)(iii).

Descriptions of the Region's Applicable Interoperability (I/O) Plans and Interoperability Requirements

The I/O channels will be used in accordance with the National Coordination Committee's (NCC) recommendations, with the exception that Region 54 will not allow encryption on any I/O channels.

Spectrum Utilization Agreements With Other Regions

The Region 54 RPC is working with its adjoining regions: 13, 14, 45, and 21 regarding the shared utilization of spectrum in accordance with the CAPRAD tool.

Description of the Pre-coordination Allocation Method Used at the Region's Borders

The Region 54 RPC has coordinated with its adjoining regions: 13, 14, 45 and 21 regarding the pre-coordination allocation of channels along the mutual borders. See Section 11 for further description.

An Overview of the 700 MHz Public Safety Frequency Coordination Database and Application Flowchart

Table 3 provides a summary of the Region 54 database upon which subsequent frequency coordination will be founded. Figure 2 depicts, in graphical form, how the coordination process will flow.

TABLE 3: REGION 54 – CHICAGO METROPOLITAN PLANNING SUMMARY

Total Regional Population:	12,641,247
Areas with at least one channel allotted:	33
Areas with no channels allotted:	0
Areas affected by Border Zone:	None

Spectrum Allotment Summary

Type	Width (KHz)	Channels Allotted	Co-Channel Usage	Channels Remaining
General Use	Voice 25	154	223	0
	Voice 12.5	0	0	0
	Voice 6.25	0	0	0
Interoperability	Voice 12.5	0	0	28
	Voice 6.25	0	0	56
Secondary Trunking	Voice 12.5	0	0	8
	Voice 6.25	0	0	16
I/O Nationwide Call	Voice 12.5	0	0	2
	Voice 6.25	0	0	4
I/O Low Speed Data	Voice 12.5	0	0	2
	Voice 6.25	0	0	4
Low Power	Voice 25	0	0	6
	Voice 12.5	0	0	12
	Voice 6.25	0	0	24

FIGURE 2: COORDINATION

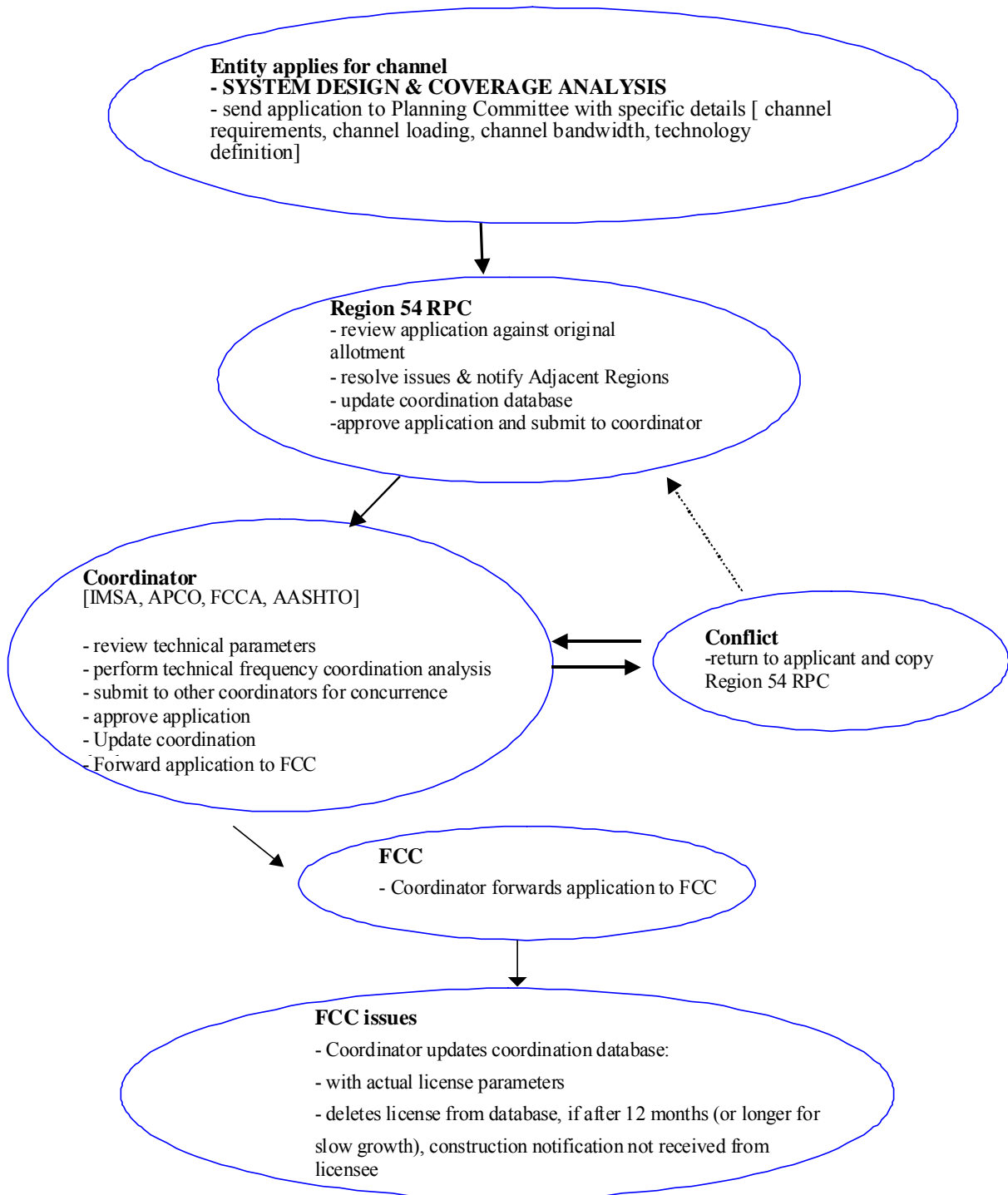


Figure 1

6 UTILIZATION OF INTEROPERABILITY CHANNELS

The narrowband voice & data interoperability channels (sixty-four at 6.25 KHz bandwidth) are defined on a nationwide basis. Appendix F shows the designation of these channels as defined by the 700 MHz National Coordination Committee. Since they are nationwide channels, each channel must have the same usage within each Region and across Regional borders. They are subdivided into different service categories.

The ANSI/TIA 102 Series standards (Project 25) are the digital interoperability standards for the conventional-only mode of operation on narrowband voice and data interoperability channels.

There are 2 calling channel sets and 30 tactical channel sets. Channel sets are comprised of two 6.25 KHz channels each.

The tactical channel sets are subdivided into the following categories:

Discipline or Use	Quantity
Emergency Medical Services	4
Fire Services	4
Law Enforcement Services	4
Mobile Repeater Operation	2
Other Public Services	2
General Services	12
Data Services	1

6.1 Calling Channels

Because the 700 MHz band will be initially encumbered by broadcast television, two of the interoperability channel sets are reserved as "Calling Channels." The States will define when and where the two calling channels are to be used. These calling channels, which appear in the Table of Interoperability Channels (Appendix F) as "7CALL50" and "7CALL70" must be monitored, as appropriate, by licensees who employ interoperability infrastructure in the associated channel group. When calling channels are integrated into infrastructure, their coverage must at equal or exceed coverage of the other interoperability channels in the system. In addition to the usual calling channel functions, the calling channels may be used to notify users when a priority is declared on one or more of the tactical interoperability channels.

6.2 Tactical Channels

All interoperability channels, except as described below, shall be used for conventional-only operation. Normally, users will call a dispatch center on one of the calling channels and will be assigned an available tactical channel.

Deployable narrowband operations (voice, data, trunking) shall be afforded access to the same pool of channels used for similar fixed infrastructure operations. In the event of conflict between multiple activities, prioritized use shall occur.

6.3 Encryption

Use of encryption is prohibited on all interoperability channels, both calling and tactical.

6.4 Deployable Systems

General Public Safety Services Channels labeled through 7TAC74, 7TAC51 through 7TAC54 or both, shall be made available for "deployable" equipment used during disasters and other emergency events that place a heavy, unplanned burden upon in-place radio systems. States shall consider the need for both "deployable trunked" and "deployable conventional" systems and make those channels available to all entities in their state/region. These are not to be solely utilized for the enhancement of private systems during an event, but for mutual aid/interoperability purposes only.

6.5 Trunking on the Interoperability (I/O) Channels

Trunking operation on the interoperability channels on a secondary basis will be coordinated between Regions and SIECs and shall be limited to operation on eight specific 12.5 KHz channel sets, divided into two subsets of four 12.5 KHz channels as defined in Appendix F.

6.6 Standard Operating Procedures on the Trunked I/O Channels for I/O Situations Above Priority Level 4

The safety and security of life and property determines appropriate interoperable priorities of access and/or reverting from secondary trunked to conventional operation. In the event secondary trunked access conflicts with conventional access for the same priority, conventional access shall take precedence. Access priority for "mission critical" communications is defined as follows:

1. Disaster and extreme emergency operations for mutual aid and interagency communications;
2. Emergency or urgent operation involving imminent danger to life or property;
3. Special event control, generally of a preplanned nature (including task force operations);

4. Single agency, secondary communications. [Priority Level 4 is the default priority when no higher priority has been declared.]

For those systems employing I/O channels in the trunked mode, the State must set up interoperability talk groups and priority levels for those talkgroups so that it is easy for dispatch to determine whether the trunked I/O conversation in progress has priority over the requested conventional I/O use. States must also determine whether a wide-area I/O conversation has priority over a local I/O conversation.

6.7 Standardized Nomenclature

Standardized nomenclature is recommended nationwide such that all 700 MHz public safety subscriber equipment using an alphanumeric display only be permitted to show the recommended label from the table in Appendix F when the radio is programmed to operate on the associated 700 MHz channel set. The table shows the recommended label for equipment operating in the mobile relay (repeater) mode. When operating in direct (simplex) mode, the letter "D" shall be appended to the end of the label.

6.8 Data-Only Use of the I/O Channels

Narrowband data-only interoperability operation on the interoperability channels on a secondary basis shall be limited to two specific 12.5 KHz channel sets, as defined in Appendix F.

6.9 State Interoperability Executive Committees

State Interoperability Executive Committees have formed to administer a State Interoperability Plan in each state. These plans include, but are not limited to, interoperability operations on the 700 MHz interoperability channels. These committees include an equal number of representatives each providing regional representation from state, county, and local governments, with additional representation from special districts and federal agencies, as appropriate. Such committees will represent all disciplines, in which case emergency medical, fire, forestry, general government, law enforcement, and transportation agencies from each level of government shall be represented equally.

The States within Region 54 will use the National Incident Management System (NIMS)/Incident Command System (ICS) as a guideline in developing their regional interoperability plans. (See Appendix H.) In the event that a state SIEC becomes inactive, the RPC shall develop and administer such plans.

The individual states may hold licenses on interoperability channels for all infrastructure and subscriber units within their state. In the event that a state declines to do so, it may delegate this responsibility to the RPC.

The states will have oversight of the administration and technical parameters of the infrastructure for the interoperability channels.

Recommended templates for a Memorandum of Understanding for Operating the 700 MHz Interoperability Channels and a Sharing Agreement are attached in Appendix I. The MOU shall be typed on appropriate committee letterhead and the Sharing Agreement on agency letterhead.

6.10 Minimum Channel Quantity

The minimum channel quantity for calling and tactical channel sets requires 8 I/O channel slots in each subscriber unit. Including direct (simplex) mode on these channel sets, up to 16 slots in each radio will be programmed for I/O purposes. Backbone issues are deferred to the SIECs. Subscriber units which routinely roam through more than one jurisdiction up to nationwide travel, will require more than the minimum channel quantity.

The CALLing channel sets (7CAL50 & 7CAL70) shall be implemented in all voice subscriber units in repeat-mode and direct (simplex) mode. Direct mode is permitted in the absence of repeat operation or upon prior dispatch center coordination. If the local CALLing channel set is not known, 7CAL50 shall be attempted first, then 7CAL70. Attempts shall be made on the repeater mode first, then on the direct (simplex) mode.

Region 54 requires a minimum set of "TACTical" channels, consisting of frequencies from TV 63 and 68, to be implemented in every voice subscriber unit in the direct (simplex) mode. Specific channel sets are shown below. (SIECs will have the option to exceed this minimum requirement. Applicants should check with the relevant state SIEC to determine if additional minimum tactical channels are required pursuant to the state interoperability plan.)

7CALL50/7CALL70
7TAC55/7TAC56/7GTAC51
7LAW61/7LAW62/7FIRE/63
7FIRE64/7MED65/7MED66

NOTE: Voice subscriber units subject to multi-jurisdictional or nationwide roaming should have all I/O voice channels, including direct (simplex) mode, programmed for use.

6.11 Direct (Simplex) Mode

In direct (simplex) mode, transmitting and receiving on the output (transmit) side of the repeater pair for subscriber-unit-to-subscriber-unit communications at the scene does not congest the repeater station with unnecessary traffic. However, should someone need the repeater to communicate with the party who is in direct mode, the party would hear the repeated message, switch back to the repeater channel, and join the communication. Therefore, operating in direct (simplex) mode shall only be permitted on the repeater output side of the voice I/O channels sets.

6.12 Common Channel Access Parameters

Common channel access parameters will provide uniform I/O communications regardless of jurisdiction, system, manufacturer, etc. Thus, the CALLing and TAC channels (all of them) should include a common Network Access Code (NAC) as the national standard. The secondary trunked I/O channels would be excluded in the trunked mode. However, when reverted to conventional I/O, the common NAC would then apply. This national requirement applies to base stations and subscriber units. It also applies to fixed or temporary operations, and to tactical or other mutual aid conventional I/O use.

Common channel access parameters for all voice I/O shall utilize the default values (ANSI/TIA/EIA-102, BAAC-200, approved April 25, 2000) provided in every radio regardless of manufacturer. Any common channel access parameters not provided shall be programmed accordingly. These parameters include the following:

- P25 Network Access Code - \$293 (default value)
- P25 Manufacturer's ID - \$00 (default value)
- P25 Designation ID - \$FFFFFF (designates everyone)
- P25 Talkgroup ID - \$0001 (default value)
- P25 Message Indicator - \$000000000000000000000000, 24 zeros (unencrypted)
- P25 Key ID - \$0000 (default value)
- P25 Algorithm ID - \$80 (unencrypted)

Any deviation from \$293 will not be permitted unless the SIEC can demonstrate in a Plan Amendment through the FCC-approved process that the intent of \$293 will be preserved on ALL conventional voice I/O channels – transmit and receive.

7 ADDITIONAL SPECTRUM SET ASIDE FOR INTEROPERABILITY WITHIN THE REGION

Region 54 is not setting aside any additional spectrum for interoperability other than what is listed in Table 3. However, Region 54 RPC reserves the right to review and allocate spectrum if needed for the purpose of mutual aid / interoperability.

8 ALLOCATION OF GENERAL USE SPECTRUM

8.1 Narrowband Channels

Frequencies are allocated to a county area. Region 54 will utilize “county areas” as guidelines for channel implementation. The definition of “county area” in this plan is the geographical/political boundaries of a given county, plus a distance of up to 10 miles outside of the county. If, after five years, a frequency allocated to a county area has not been assigned, the RPC may reallocate those frequencies. If a system has not been built five years after a license has been issued, the Committee will recommend that the FCC cancel the license so that it can reassign those frequencies. Although this may not be applicable, it will require case-by-case review.

Allocations were made in 25 KHz groups to allow for various digital technologies to be implemented. These allotments have been pre-determined by the CAPRAD database. The use of 25 KHz building blocks allows for technology-neutral pre-planning. Agencies using Frequency Division Multiple Access (FDMA) will be expected to maintain 12.5 KHz equivalency when developing systems and will also be expected to attempt to utilize both 12.5 KHz portions of the 25 KHz block. In most cases, this will require the geographic separation of each 12.5 KHz adjacent channel. If a licensee chooses a technology that does not use their entire 25 KHz allotment, they shall return the unused bandwidth to the Region’s general use pool or work with the RPC and/or frequency coordinators to trade for another equivalent allotment.

If agencies choose a technology that requires less than 25 KHz channel bandwidth for their system, there is the potential for residual, “orphaned channels” of 6.25 KHz or 12.5 KHz bandwidth immediately adjacent to the assigned channel within a given county area.

An orphan channel may be used at another location within the county area where it was originally approved, if it meets co- and adjacent channel interference criteria. Region 54 will utilize county areas as guidelines for channel implementation within the area of Region 54. The definition of “county area” in

this plan is the geographical/political boundaries of a given county, plus a distance of up to 10 miles outside of the county.

If the channel, or a portion of a channel, is being moved into a county area that is within 30 miles of an adjacent Region, Region 54 will receive concurrence from the affected Region. By extending the county area by a designated distance, it is anticipated this will increase the possibility that orphaned channel remainders will still be able to be utilized within the county area, and reduce the potential for channel remainders to be forced to lay dormant and used with a county channel allotment. These movements will be documented on the National Public Safety Telecommunications Council CAPRAD database.

If the orphaned channel remainder does not meet co-channel and adjacent channel interference criteria by moving it within the county area as listed above, and it is determined by the Region that the orphaned channel cannot be utilized in the Region without exceeding the distance described in the county area listed above, Region 54 will submit a plan amendment to the FCC to repack the channel to a location where its potential use will maintain maximum spectral efficiency. This FCC plan amendment will require affected Region concurrence.

When in the best interest of public safety communications and efficient spectrum use within the Region, the Region 54 Regional Planning Committee shall have the authority to move orphan channel allotments, and/or co-channel and adjacent channel allotments affected by the movement of orphan channels, within its county areas, which are defined above. This is to retain spectral efficiency and/or minimize co-channel or adjacent channel interference between existing allotments within the Region utilizing disparate bandwidths and technologies.

Applications within Region 54 will be handled on a first-come, first-served basis unless competing applications are received simultaneously. In such cases, or in instances where a shortage of 700 MHz spectrum develops, the application evaluation procedures described in Section 10 of this Plan will be employed.

If NPSPAC channels are still available in an area of the Region, the 700 MHz RPC will work with the NPSPAC Regional Conformance and Review Committee (RCRC), where technically appropriate, to complete the NPSPAC allocation before allocating the 700 MHz spectrum.

If, after five years, the applicant has not built out a system at 700 MHz, its allotted frequencies will be placed back into the Region's general use pool and be available to any applicant on a first-come, first-served basis.

8.2 Spectrum Requests for Wideband Operations

Operations greater than 25 KHz are permitted only under waiver. Waiver applications must include a letter of support from the Regional Planning Committee. Region 54 will entertain applications for waivers to operate on aggregated spectrum at bandwidths greater than 25 KHz on a case-by-case basis. Applicants will be required to provide the Regional Planning Committee with the spectrum identified for wideband operations and an assessment of the impact of proposed wideband operations on adjacent channel allotments. If Region 54 is satisfied that the wideband operations will not interfere with existing narrowband allotments, a letter of support will be provided to the applicant. Wideband waiver requests must be approved by the Region and the FCC.

9 AN EXPLANATION OF HOW PRIORITIES WERE ASSIGNED WHEN NOT ALL ELIGIBLES COULD RECEIVE LICENSES.

The demand for frequencies varies depending on the population of an area. Dense urban areas contain many individual public safety agencies, all making their own demands for frequencies. This problem is not as intense in more rural areas where the number of individual agencies is fewer. To differentiate between such areas of the region, primary and secondary zones have been designated. A primary zone contains jurisdictions that are severely impacted as a result of an excess demand for scarce spectrum. A secondary zone contains jurisdictions that are impacted to a lesser degree. The requirements for system implementation in a primary zone will be more restrictive than in a secondary zone.

At this time the primary zones are defined as the following eight (8) counties: Cook, DuPage, Lake, and Kane (Illinois); Lake (Indiana); Milwaukee, Racine, and Kenosha (Wisconsin). The remaining 25 counties of the Region are all defined as secondary zones.

Agencies competing for frequencies at the same time in the 764-776/794-806 MHz Band will be prioritized according to the degree that the service(s) they provide are fundamental to the protection of life and property.

A matrix will be used to evaluate competing applications within the Region. Points will be awarded more stringently in Primary Zone applications. The applications receiving the highest number of points will receive the channels. There are seven scoring categories:

- Service (Maximum score 350 points)

Police, fire, EMS, local government, combined systems, multi-jurisdictional systems, etc.

- Intersystem & Intrasystem interoperability (Maximum score 100 points)

How well the proposed system will be able to communicate with other levels of government and services during an emergency on “regular” channels, not the I/O channels.

Interoperability must exist among many agencies to successfully accomplish the highest level of service delivery to the public during a major incident, accident, natural disaster, or terrorist attack. Applicants requesting 700 MHz spectrum shall inform the region of how and with whom they have been achieving interoperability in their present system.

The applicant shall stipulate how they will accomplish interoperability in their proposed system (gateway, switch, cross-band repeater, console cross patch, software defined radio, or other means) for each of the priorities listed below:

1. Disaster and extreme emergency operation for mutual aid and interagency communications.
2. Emergency or urgent operation involving imminent danger to life or property.
3. Special event control, generally of a preplanned nature (including task force operations).
4. Single agency secondary communications.
5. Routine day-to-day non-emergency operations.

- Loading (Maximum score 150 points)

Is the system part of a cooperative, multi-organization system? Is the application an expansion of an existing 800 MHz system? Have all 821 channels been assigned (where technically feasible)? A showing of maximum efficiency or a demonstration of the system's mobile usage pattern could be required in addition to loading information. Based on population, number of units (if number of units, are they take home, how many per officer), what are the talk groups?

- Spectrum Efficient Technology (Maximum score 350 points)

How spectrally efficient is the system's technology? Trunked systems are considered efficient "as well as any technological systems feature, which is designed to enhance the efficiency of the system and provide for the efficient use of the spectrum."

- Systems Implementation Factors (Maximum score 100 points)

Demonstrate funding, demonstrate system planning. Provide a construction / implementation schedule. Is this going to be slow growth (within the next five years)? Is it something that's ready to be implemented now? A document stipulating what the agency is planning to implement signed by an official within the organization who controls the proposed system's funding is required.

- Geographic Efficiency (Maximum Score 100 points)

The ratio of subscriber units to area covered and the channel reuse potential are the two subcategories in this criterion. "The higher the ratio (mobiles divided by square miles of coverage) the more efficient the use of the frequencies." Those systems which cover large geographic areas will have a greater potential for channel reuse and will therefore receive a high score in this subcategory."

- Frequency Givebacks (Maximum score 200 points)

Consider the number of channels given back
Consider the extent of availability and usability of those channels to others.

10 AN EXPLANATION OF HOW ALL THE REGION ELIGIBLES' NEEDS WERE CONSIDERED AND MET, TO THE EXTENT POSSIBLE

Applications will be submitted to the local Regional Planning Committee via CAPRAD along with notification to the Regional Chairperson from the applicant. The Regional Conformance Review Committee will review the application packet for completeness, and the eligibility of the applying organization. Incomplete applications, or applications from agencies which are not considered by this Plan to be eligible for the limited spectrum, will be returned to the applicant with the appropriate remarks.

INFORMATION REQUIRED:

- The current standardized APCO Frequency Coordination and FCC License Application forms will be used.
- Talkout coverage maps at 40, 25 and 5 dBμ using TIA/EIA TSB88-B or latest version. Maps must show, at a minimum, the jurisdictional border, and a line around the jurisdiction 3 miles out from that border.
- Any other pertinent information that would support the application. Applicants seeking a modification of their license should provide detailed information on their existing system.

In addition, the applicant will be required to furnish supplemental information in specific categories. These categories are enumerated (and briefly defined) above. Each category has been assigned a numerical weight for application evaluation purposes.

The Regional Conformance Review Committee may require additional information at any time during review to assist in evaluation.

Application packages are to be submitted to CAPRAD and posted one month prior to the meeting. The review meetings are held on a regular semi-annual basis.

11 ADJACENT REGION COORDINATION

There are four planning regions that are adjacent to the Southern Lake Michigan Region. They consist of the remaining portions of each of the three participating states plus Michigan:

- Region 13 (Illinois)
- Region 14 (Indiana)
- Region 21 (Michigan)
- Region 45 (Wisconsin)

A combination of three historical facts has created an excellent opportunity for coordinating this Plan with those of the Regions adjacent to it:

- 1) The Southern Lake Michigan Region was the first to organize a planning committee.

- 2) This Region has as members the Frequency Advisors and Regional Planning Chairs of each participating State.
- 3) Several members of the Region 54 Planning Committee also serve on or assist their own state's planning committee.

Communication among Regions has thus been ever-present during the drafting of this plan. Implementation of each of the five plans will similarly be coordinated through the mutual membership and cooperation of the planning committees.

Counties or other geographic subdivisions within 70 miles of the Regional border need to share spectrum with the adjacent Region(s). The sharing indicated is inherent in the NPSTC Packing Program, as it views all counties nationwide as separate entities while ignoring state borders. With all criteria being equal, this ensures all counties are provided sufficient spectrum in accordance with their surrounding counties. The appropriate ratio of channels shall be allotted to counties in adjacent Regions based upon each county's population. A 25 KHz building block will be used to distribute spectrum between the Regions. A description of the demographics of the affected border areas shall be included.

Attached are signed concurrences and Inter-Regional Dispute Resolution Agreements from each adjacent Region.

12 A DETAILED DESCRIPTION OF HOW THE PLAN PUT SPECTRUM TO THE BEST POSSIBLE USE

Applicants are required to design their systems to maximize spectrum utilization, e.g., utilize simulcast or spectrum efficient technology. The 700 MHz FCC rules require trunking when using six or more channels unless the applicant can demonstrate that conventional use of the channels is at least as efficient as trunking. Multiple users within a given political subdivision are required to use a common system whenever possible.

Initial allotments will be made on the basis of 25 KHz channels. To maximize spectrum utilization, prudent engineering practices and receivers of the highest quality must be used in all systems. Given a choice of radios to choose from in a given technology family, agencies should use the units with the best specifications. This plan will not protect agencies from interference if their systems are under-constructed (e.g., areas with the established service area having minimum signal strength below 40 dBμ), or if the systems utilize low quality receivers. The applicant's implementation of prudent engineering practices will be encouraged by the Regional Planning Committee at all times.

It is the eventual goal of the FCC and the public safety community for radio equipment to meet the requirement of one voice channel per 6.25 KHz of spectrum. When applying for channels within Region 54, the applicants should acknowledge the deadline for converting all equipment to 6.25 KHz or 6.25 KHz equivalent technology is 12/31/2016. For narrowband mobile data requests, one mobile data channel will consist of two (2) 6.25 KHz channels/one (1) 12.5 KHz channel. Narrowband 6.25 KHz channels can be aggregated for data use to a maximum bandwidth of 25 KHz. As 6.25 KHz migration evolves, an agency that creates any "orphaned" 6.25 KHz channels should realize that these channels would be allocated to nearby agencies requesting channels to maintain consistent grouping and utilization of 25 KHz blocks within the region. (See Section 8)

Region 54 encourages small agencies to partner with other agencies in multi-agency or regional systems, as they promote spectral efficiency and both small and large agency capacity needs can be met. Loading criteria can also be achieved in multi-agency systems that will allow greater throughput for all agencies involved than that which could be achieved individually. The Region 54 Committee advocates the sharing of infrastructure and spectrum resources to promote large area systems thus promoting wide area coverage and daily system interoperability.

13 A DETAILED DESCRIPTION OF THE FUTURE PLANNING PROCEDURES

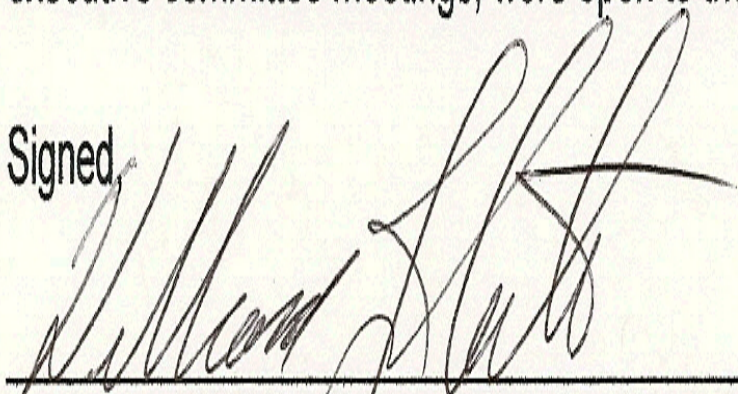
Appendix J describes Region 54's Intra-Regional Dispute Resolution Process. The Region will update the CAPRAD database as spectrum allocations are made and FCC licenses are granted.

**14 A CERTIFICATION BY THE REGIONAL PLANNING CHAIRPERSON THAT
ALL PLANNING COMMITTEE MEETINGS, INCLUDING SUBCOMMITTEE OR
EXECUTIVE COMMITTEE MEETINGS WERE OPEN TO THE PUBLIC**

The Southern Lake Michigan 700 MHz Regional Planning Committee derives its authority to carry out the activities required for composition and implementation of this Plan from the Commission's Report and Order General Docket No. 96-86 released on September 29, 1998.

I hereby certify that all planning committee meetings, including subcommittee or executive committee meetings, were open to the public.

Signed



Chairman, 700 MHz Regional Planning Committee

14 APPENDIX A - THE BYLAWS OF REGION 54

700 MHz Planning Committee

BYLAWS OF REGION 54 700 MHZ PLANNING COMMITTEE

ARTICLE I

NAME & PURPOSE

- 1.1 Name and purpose. The name of this Regional Planning Committee shall be Region 54 700 MHz Planning Committee, commonly referred to as the Southern Lake Michigan Region. This region consists of thirty-three (33) counties of Wisconsin, Illinois, and Indiana at the southern tip of Lake Michigan. The Committee's primary purpose is to design, develop and implement a regional plan for the use of radio frequencies in the 700 MHz Public Safety Band throughout the specified service area.

ARTICLE II

MEMBERS

For purposes of this Article, the term "member," unless otherwise specified, refers to both voting and non-voting members.

- 2.1 Number, Election and, Qualification. The Regional Planning Committee (RPC) shall have two classes of members, 1) voting members and 2) non-voting members. New members may be added at annual, special, or regular meetings.
- 2.1.1 Voting Members. Voting members shall consist of one (1) representative from each eligible public safety agency, as set forth by 47 CFR 90.523, participating on the Region 54 RPC, and each frequency advisor who is authorized by the FCC to perform frequency coordination tasks for the spectrum in the 764 – 776 / 794 – 806 band. Voting members are tasked with the general business of the Region, including plan review under the guidance of the Executive Committee. As needed, temporary sub-committees may be devised with voting members to address issues (grant money applications, etc.). Voting member roster is located in Appendix B of this plan.
- 2.1.2 Non-Voting Members. Non-voting members are all others interested in furthering the goals of public safety communications. Non-voting members will not be authorized to vote unless a voting member gives written proxy to a non-voting member in his absence. See Section 2.12.

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- 2.1.3 Non-Voting Commercial Members. Non-Voting Commercial members are representatives from any company that wants to further the goals of public safety communications. Non-voting commercial members are able to attend meetings and act as advisers as necessary, but will not be authorized to vote.
- 2.2 Tenure. In general, each member shall hold membership from the date of acceptance until resignation or removal.
- 2.3 Powers and Rights. In addition to such powers and rights as are vested in them by law, or these bylaws, the members shall have such other powers and rights as the membership may determine.
- 2.4 Suspension and Removal. A member may be suspended or removed with cause by vote of a majority of members after reasonable notice and opportunity to be heard. Failure to attend Two consecutive meetings shall be a specific cause for removal from the membership.
- 2.5 Resignation. A member may resign by delivering written resignation to the chairman, vice-chairman, treasurer, or secretary of the Regional Planning Committee or to a meeting of the members.
- 2.6 Semi-Annual Meetings. The Semi-annual meeting of the members shall be held at the Grundy County Administration Building, 1320 Union Street, Office of Emergency Management, Morris, Illinois 60450, in the spring of each year.
- 2.7 Special Meetings. Special meetings of the members may be held at any time and at any place within the Regional Planning Committee area. Special meetings of the members may be called by the chairman or by the vice-chairman, or in case of death, absence, and incapacity, by any other officer or, upon written application of two or more members.
- 2.8 Call and Notice.
- 2.8.1 Semi-Annual meetings. Reasonable notice of the time and place of special meetings of the members shall be given to each member. Such notice need not specify the purposes of a meeting, unless otherwise required by law or these bylaws or unless there is to be considered at the meeting (i) amendments to these bylaws, (ii) an increase or decrease in the number of members, or (iii) removal or suspension of a member who is an officer.
- 2.8.2 Reasonable and sufficient notice. Except as otherwise expressly provided, it shall be reasonable and sufficient notice to a member to send notice by mail at least five days or by e-mail / facsimile at least three days before the meeting, addressed to such member at his or her usual or last known

business address; or, to give notice to such member in person or by telephone at least three days before the meeting.

- 2.9 Quorum. At any meeting of the members, ten per cent (10%) of the voting members shall constitute a quorum. Any meeting may be adjourned to such date or dates not more than ninety days after the first session of the meeting by a majority of the votes cast upon the question, whether or not a quorum is present, and the meeting may be held as adjourned without further notice.
- 2.10 Action by Vote. Each voting member representing a particular agency (one vote per agency) shall have one vote; non-voting members have no right to vote except as deemed in Section 2.12. When a quorum is present at any meeting, a majority of the votes properly cast by voting members present shall decide any question, including election to any office, unless otherwise provided by law or these bylaws.
- 2.11 Action by Writing. Any action required or permitted to be taken at any meeting of the members may be taken without a meeting if all members entitled to vote on the matter consent to the action in writing and the written consents are filed with the records of the meetings of the members. Such consents shall be treated for all purposes as a vote at a meeting.
- 2.12 Proxies. Voting members may vote either in person or by written proxy dated not more than one month before the meeting named therein, which proxies shall be filed before being noted with the secretary or other person responsible for recording the proceedings of the meeting. Unless otherwise specifically limited by their terms, such proxies shall entitle the holders thereof to vote at any meeting by the proxy and shall terminate after the final adjournment of such meeting.
- 2.13 Voting on One's Own Application. At no time can a voting member vote on his application.
- 2.14 Special Interest Voting. A voting member can NOT have a commercial interest in any of his region and/or adjacent regions applications(s) on which he is reviewing, approving and/or voting.

ARTICLE III

OFFICERS AND AGENTS

- 3.1 Number and qualification. The officers of the Regional Planning Committee shall be a chairman, vice-chairman, treasurer, secretary and such other officers, if any, as the voting members may determine.

- 3.2 Election. The officers shall be elected by the voting members.
- 3.3 Tenure. The officers shall each hold office until the next bi-annual meeting of the members held one year from the adoption of these bylaws, or until their successor, if any, is chosen, or in each case until he or she sooner dies, resigns, is removed, or becomes disqualified. Subsequent election of officers shall be held at each bi-annual meeting when necessary. The Executive board shall entertain nominees and present them to the members for their selection by vote.
- 3.4 Chairman. The chairman shall be the chief executive officer of the Regional Planning Committee and, subject to the control of the voting members, shall have general charge and supervision of the affairs of the Regional Planning Committee. The chairman shall preside at all meetings of the Regional Planning Committee.
- 3.5 Vice-Chairman. The Vice-Chairman shall have such duties and powers as the voting members shall determine. The vice-chairman shall have and may exercise all the powers and duties of the chairman during the absence of the chairman or in the event of his or her inability to act.
- 3.6 Treasurer. The treasurer shall be the chief financial officer and the chief accounting officer of the Regional Planning Committee. The treasurer shall be in charge of its financial affairs, funds, and valuable papers and shall keep full and accurate records thereof.
- 3.7 Secretary. The secretary shall record and maintain records of all proceedings of the members in a file or series of files kept for that purpose, which file or files shall be kept within the Region and shall be open at all reasonable times to the inspection of any member. Such file or files shall also contain records of all meetings and the original, or attested copies, of bylaws and names of all members and the address (including e-mail address, if available) of each. If the secretary is absent from any meeting of members, a temporary secretary chosen at the meeting shall exercise the duties of the secretary at the meeting.
- 3.8 Suspension or Removal. An officer may be suspended with cause by vote of a majority of the voting members.
- 3.9 Resignation. An officer may resign by delivering his or her written resignation to the chairman, vice-chairman, treasurer, or secretary of the Regional Planning Committee. Such resignation shall be effective upon receipt (unless specified to be effective at some other time), and acceptance thereof shall not be necessary to make it effective unless it so states.
- 3.10 Vacancies. If the office of any officer becomes vacant, the Chairman shall appoint a successor. Each such successor shall hold office for the remainder of the term, after which a new officer shall be elected by the membership.

ARTICLE IV

SUBCOMMITTEES

- 4.1 Assignment of Tasks. For purposes of dividing the tasks associated with developing and administering this Plan, the Regional Planning Committee shall be organized into Subcommittees. Each subcommittee shall consist of a volunteer chairman and members. Other subcommittees may be created by a majority of membership votes.
- 4.2 Number and Purpose. Initially, the Regional Planning Committee shall be divided into the following seven (7) subcommittees for the purposes stated in this section. Subcommittees will exist only until such time as their purpose has been fulfilled.
- 4.2.1 Rules Subcommittee. This subcommittee shall be comprised of the Committee Officers plus the Frequency Advisor (or designee) from each of the three states. Its initial purpose is to develop and submit the Plan to the FCC. After approval by the Commission, the Rules Subcommittee will administer all of the Plan's policies and procedures, ensuring that the 700 MHz spectrum is adequately and fairly distributed among Region 54 Public Safety entities. The Rules Subcommittee will continue to exist until such time that the Region 54 700 MHz Planning Committee itself is dissolved in accordance with the conditions set forth under Article VI of these bylaws.
- 4.2.2 Interoperability Subcommittee. The Interoperability Subcommittee will be comprised of volunteers representing as many different public safety agencies as possible. Its purpose is to identify inter-agency communication requirements throughout the Region. It will also foster cooperation and develop any necessary inter-agency agreements. It will consider and make recommendations on issues such as Incident Command Structure, policy and procedures of operation of the Interoperability Channels, inter-agency memoranda of understanding, etc.
- 4.2.3 Membership Subcommittee. The Membership Subcommittee will be comprised of as many volunteers as is feasible for a working group. It will consider and make recommendations on issues such as eligibility, methods of recruiting a broad base of public safety organizations including Native Americans (i.e., notification of eligibles), opting in / out of Region 54, etc. The Membership Subcommittee will review and approve the voting eligibility of each designated agency representative. The Membership Subcommittee will also ensure that the membership database is kept current.
- 4.2.4 Technical Subcommittee. The Technical Subcommittee will be comprised of as many volunteers as is feasible for a working group. It will consider and

make recommendations on issues such as use of a pre-coordination database, frequency reuse, availability of channels, loading criteria, etc.

- 4.2.5 Implementation Subcommittee. The Implementation Subcommittee will be comprised of as many volunteers as is feasible for a working group. It will consider and make recommendations on issues such as application evaluation, frequency coordination, application submittal to the FCC, etc.
- 4.2.6 Financial. The Financial Subcommittee will be comprised of the Treasurer and as many volunteers as is feasible for a working group. It will consider and make recommendations for issues such as applying for federal grant monies, reimbursement of agency expenses incurred as a result of this Plan, identifying alternative methods of funding, etc.
- 4.2.7 Regional Conformance Review Subcommittee. This committee would be made up of 9 members: the Regional Chairman, Vice-Chairman and Secretary, one member each from an agency within Illinois, Wisconsin, and Indiana that shall be elected by the representatives of that state area, and the Local Frequency Advisors which reside within the states of Wisconsin, Illinois and Indiana.

ARTICLE V

AMENDMENTS

These bylaws may be altered, amended, or repealed in whole or in part by vote. The voting members may, by a two-thirds majority vote, alter, amend, or repeal any bylaws adopted by the Regional Planning Committee members or otherwise adopt, alter, amend, or repeal any provision which FCC regulations, or these bylaws, require.

ARTICLE VI

DISSOLUTION

This Regional Planning Committee may be dissolved by the consent of two-thirds plus one of the members in good standing at a special meeting called for such purpose. The FCC shall be notified.

15 APPENDIX B - REGION 54 MEMBERSHIP ROSTER

First Name	Last Name	Position	Agency/Company	Address	City	State	Zip	OfficePhone
Ned	Jacklin	Telecommunications Manager	Aurora Police Department	350 N River St	Aurora	IL	60506	(630) 801-6503
Chris	Kindelspire	Director of Electronic Operations	Grundy County ETSB	1320 Union St	Morris	IL	60450-	
Carl	Guse		Wisconsin State Patrol	P O Box 7912	Madison	WI	53707	(608) 266-2497
William	Carter	Special Technical Advisor	Grundy County ETSB	1320 Union St	Morris	IL	60450-	(312) 497-6802
Thomas	Ward		Illinois State Police	531 Sangamon Ave	Springfield	IL	62702-	(217) 782-5742
William	Springer		Illinois Tollway	2700 Ogden Ave	Downers Grove	IL	60515-	(630) 241-6800
Alex	Whitaker	Telecommunications Engineer	Indiana State Police	8500 E 21st St	Indianapolis	IN	46219-	(317) 889-8529
Samuel	Steffan	Communications Manager	Milwaukee Police Department					(414) 935-7473
Al	Nowakowski	Telecommunications Engineer	Michigan Department of Information Technology					(517) 333-5010
Jim	Hunt		Northwest Central Dispatch					(847) 590-3424
Steve	Rauter	Executive Director	WesCom	14300 Coil Plus Dr	Plainfield	IL	60544-	(815) 267-8314
Walter	Klinger		Cook County Sheriff's Police			IL		(708) 865-4808
Julius	Rutili		Cook County Sheriff's Police			IL		(312) 401-9000
Rudy	Jezek		Will County EMA			IL		(815) 372-9438

Ed	Bean		Will County EMA		Joliet	IL		(815) 740-8355
Julie	Ponce-Doyle		City of Joliet		Joliet	IL		(815) 724-3156
Patti	Deffenbaugh		City of Joliet		Joliet	IL		(815) 724-3172
John	Lozar	Technical Services Manager	DuComm		Glendale Heights	IL		(630) 260-7516
John	Doering		Peoria County			IL		(309) 696-9844
Gary	Gorr	Communications Administrator	County of Lake			IL		(847) 377-7115
Maureen	Weiher		County of Milwaukee			WI		(414) 278-2031
Jerianne	Feiten		County of Milwaukee			WI		(414) 278-4685
David	Goldberg		Chicago Transit Authority		Chicago	IL		(312) 681-3618
Mike	McNamara		Will County EMA		Joliet	IL		(815) 482-0497
Anthony	Stantz		Indiana State Police	8500 E 21st St	Indianapolis	IN	46219-	(317) 899-8524
David	Hewitt		Wisconsin State Patrol			WI		(608) 266-0184
Rich	Melbow		Michigan Public Safety			MI		(269) 655-0335
Craig	Lundt		Forest Park ETSB					(708) 615-6227
Bob	Fleischmann		IDOT					(847) 705-4561
David	Shepherd		McHenry County Sheriff's Office			IL		(815) 338-2144
Mike	Bayard		Elgin Police Department		Elgin	IL	60120-	(847) 289-2574
Joe	Bush		Elgin Police Department		Elgin	IL	60120-	(847) 289-2778

16 APPENDIX C - PUBLIC NOTICE OF MICHIGAN OPT-OUT

PUBLIC NOTICE

FEDERAL COMMUNICATIONS COMMISSION
445 Twelfth Street, S.W.
WASHINGTON, D.C. 20554

DA 01-2112

News media information 202/418-0500 Fax-On-Demand 202/418-2830 Internet: <http://www.fcc.gov> <ftp.fcc.gov>

Released: September 10, 2001

PUBLIC SAFETY 700 MHz BAND – GENERAL USE CHANNELS APPROVAL OF CHANGES TO REGIONAL PLANNING BOUNDARIES OF CONNECTICUT AND MICHIGAN

By this *Public Notice*, the Wireless Telecommunications Bureau accepts and approves the decisions of Connecticut and Michigan to “opt out” of their assigned planning regions for purposes of the regional planning process established by the Commission for the General Use channels in the 700 MHz public safety band.¹ As a result of these “opt out” decisions, the 700 MHz planning regions are hereby modified as set forth in the **Attachment** hereto.

By way of background, in 1998 the FCC decided that the 700 MHz public safety band regional planning committees (RPCs) would be based on the same fifty-five planning regions used in the 800 MHz band.² However, the FCC also decided to allow states or territories not in regions defined by state boundaries to “opt out” of their existing regions to form or join a planning region that corresponds with their state’s geographic boundaries.³ The deadline date for reporting “opt out” decisions was July 2, 2001.⁴

¹ See Development of Operational, Technical and Spectrum Requirements for Meeting Federal, State and Local Public Safety Agency Communications Requirements Through the Year 2010, WT Docket No. 96-86, *First Report and Order and Third Notice of Proposed Rulemaking*, 14 FCC Rcd 152, 191 ¶ 78 (1998).

² *Id.* and at 263, Appendix D (List of Regions).

³ *Id.* at 191-92 ¶¶ 80, 85.

⁴ Public Safety 700 MHz Band General Use Spectrum Deadline for Changing Regional Boundaries is July 2, 2001, *Public Notice*, 16 FCC Rcd 726 (WTB PSPWD 2001). See also Development of Operational, Technical and Spectrum Requirements for Meeting Federal, State and Local Public Safety Agency Communications Requirements Through the Year 2010, WT Docket No. 96-86, *Second Memorandum Opinion and Order*, 15 FCC Rcd 16844, 16876 ¶ 68 (2000). Pursuant to timely filed requests, the deadline date was extended until November 2, 2001, and January 2, 2002, for the 700 MHz Public Safety Band Region 42 RPC and the 700 MHz Public Safety Band Region 8 RPC, respectively. See Letter to David R. Warner, Convener, Virginia Region 42, from D’wana R. Terry, Chief, Public Safety and Private Wireless Division (PSPWD), WTB (June 29, 2001); Letter to Rosalind K. Allen, Esq., Counsel for the City of New York, from D’wana R. Terry, Chief, Public Safety and Private Wireless Division, WTB (Aug. 3, 2001).

Connecticut was eligible to “opt out” because it was part of Region 8 and Region 19. The Chairman of the 700 MHz Public Safety Band Region 19 RPC reports that all RPC members from Connecticut have agreed to “opt out” of Region 8 to join the 700 MHz Public Safety Band Region 19 with boundaries redrawn to encompass all of Connecticut.⁵

Michigan was eligible to “opt out” because it comprised Region 21 and part of Region 54. The Chairman of the 700 MHz Public Safety Band Region 21 RPC reports that all RPC members from Michigan have agreed to “opt out” of Region 54 to join the 700 MHz Public Safety Band Region 21 with boundaries redrawn to encompass all of Michigan.⁶

For further information, contact Bert Weintraub, Esq., of the Policy and Rules Branch, Public Safety and Private Wireless Division, Wireless Telecommunications Bureau, at (202) 418-0680, TTY (202) 418-7233, or via email to bweintra@fcc.gov.

Action by the Chief, Public Safety and Private Wireless Division, Wireless Telecommunications Bureau.

– FCC –

⁵ See Letter to D’wana R. Terry, Chief, Public Safety and Private Wireless Division, WTB, from George Pohorilak, New England 700 MHz Chairman (dated May 2, 2001).

⁶ See Letter to Joy Alford, WTB, from Stephen Todd, Region 21 Chairman (dated June 26, 2001).

17 APPENDIX D - MEETING ANNOUNCEMENTS

[Please see separate pdf file]

18 APPENDIX E - MEETING MINUTES AND COMMENTS

[Please see separate pdf files]

20 APPENDIX F - Table of 700 MHz Interoperability Channels

16 Channel Sets	Description	Label	Use/Notes
Channel 23 & 24	General Public Safety Services (secondary trunked)	7TAC51	
Channel 103 & 104	General Public Safety Services (secondary trunked)	7TAC52	
Channel 183 & 184	General Public Safety Services (secondary trunked)	7TAC53	
Channel 263 & 264	General Public Safety Services (secondary trunked)	7TAC54	
Channel 39 & 40	Calling Channel	7CALL50	Mandatory ¹
Channel 119 & 120	General Public Safety Service	7TAC55	Mandatory ¹
Channel 199 & 200	General Public Safety Service	7TAC56	Mandatory ¹
Channel 279 & 280	Mobile Data	7DATA69	
Channel 63 & 64	Emergency Medical Service	7MED65	Mandatory ¹
Channel 143 & 144	Fire Service	7FIRE63	Mandatory ¹
Channel 223 & 224	Law Enforcement Service	7LAW61	Mandatory ¹
Channel 303 & 304	Mobile Repeater	7MOB59	Mandatory ¹
Channel 79 & 80	Emergency Medical Service	7MED66	Mandatory ¹
Channel 159 & 160	Fire Service	7FIRE64	Mandatory ¹
Channel 239 & 240	Law Enforcement Service	7LAW62	Mandatory ¹
Channel 319 & 320	Other Public Service	7GTAC57	Mandatory ¹
Channel 657 & 658	General Public Safety Services (secondary trunked)	7TAC71	
Channel 737 & 738	General Public Safety Services (secondary trunked)	7TAC72	
Channel 817 & 818	General Public Safety Services (secondary trunked)	7TAC73	
Channel 897 & 898	General Public Safety Services (secondary trunked)	7TAC74	
Channel 681 & 682	Calling Channel	7CALL70	Mandatory ¹
Channel 761 & 762	General Public Safety Service	7TAC75	Optional ²
Channel 841 & 842	General Public Safety Service	7TAC76	Optional ²
Channel 921 & 922	Mobile Data	7DATA89	
Channel 641 & 642	Emergency Medical Service	7MED86	Optional ²
Channel 721 & 722	Fire Service	7FIRE83	Optional ²
Channel 801 & 802	Law Enforcement Service	7LAW81	Optional ²
Channel 881 & 882	Mobile Repeater	7MOB79	
Channel 697 & 698	Emergency Medical Service	7MED87	Optional ²
Channel 777 & 778	Fire Service	7FIRE84	Optional ²
Channel 857 & 858	Law Enforcement Service	7LAW82	Optional ²
Channel 937 & 938	Other Public Services	7GTAC77	Optional ²
Channels Labeled as Mandatory and Optional include both the mobile transmit and mobile receive (a total of 21 channels) for			

subscriber units only. Mandatory¹ required for all 700MHz licensees. Optional² are recommended additional Interop for radios that have additional channel capacity. Simplex channel names should carry the “D” (for Direct) suffix as used in the national interoperability channel naming convention.

LIST OF 700 MHz NARROWBAND LOW POWER FREQUENCIES

Pursuant to 2nd Report & Order

(Released August 10, 2007)Effective October 23, 2007

In the Third Report & Order in Docket 96-86, the FCC allocated twenty-four 6.25 kHz frequency pairs for low power, on-site operations such as fireground. Analog primary operations are permitted on these frequencies. When allocating for analog use, 12.5 kHz bandwidth would be required. Operation on these frequencies is limited to 2 watts ERP and antenna height it limited to 20' above ground. (It has been proposed that these limits be increased.)

Six (three 12.5 kHz) of these frequency pairs are for nationwide itinerant use and are not subject to Regional Planning. The remaining 18 (nine 12.5 kHz) low power frequency pairs are to be administered by the 700 MHz Regional Planning Committees.

Interest has arisen from Region 54 fire service representatives to establish common channel naming and tone squelch for these channels in order to accommodate common usage on the fireground and other tactical situations. The following is a draft proposal to address this interest. Analog, 12.5 kHz operation with a common tone squelch of 156.7 Hz would be used on all frequencies.

Each channel has been given a discipline indicator to allow users some channels to focus on, however, all nine channels would be available for assignment as needed. Within each discipline group, frequency separation has been provided in order to reduce interference.

7FTAC1	700 Fire Tactical
7FTAC2	700 Fire Tactical
7FTAC3	700 Fire Tactical
7GTAC4	700 General Govt Tactical
7GTAC5	700 General Govt Tactical
7LTAC6	700 Law Tactical
7LTAC7	700 Law Tactical
7LTAC8	700 Law Tactical
7MTAC9	700 Medical Tactical
7NTAC10	700 National Tactical/Itinerant
7NTAC11	700 National Tactical/Itinerant
7NTAC12	700 National Tactical/Itinerant

Channel Number	FCC Channels	Base Frequency	Mobile Frequency	Name*
1	1-2	769.006250	799.006250	7FTAC1
2	3-4	769.018750	799.018750	7LTAC6
3	5-6	769.031250	799.031250	7GTAC4
4	7-8	769.043750	799.043750	7FTAC3
5	9-10	769.056250	799.056250	7NTAC10
6	1112	769.068750	799.068750	7NTAC11
7	949-950	774.931250	804.931250	7FTAC2
8	951-952	774.943750	804.943750	7LTAC7
9	953-954	774.956250	804.956250	7GTAC5
10	955-956	774.968750	804.968750	7MTAC9
11	957-958	774.981250	804.981250	7LTAC8
12	959-960	774.993750	804.993750	7NTAC12

*Simplex channel names could carry the "D" (for Direct) suffix as used in the national interoperability channel naming convention.

700 MHz BAND PLAN per Second R&O in PS Docket 06-229

960 Narrowband Base Channels (6.25 kHz each, aggregate to 25 kHz)

69 MHz																														772 MHz																														775 MHz																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	524	525	526	527	528	529	530	531	532	533	534	535	536	537	538	539	540	541	542	543	544	545	546	547	548	549	550	551	552	553	554	555	556	557	558	559	560	561	562	563	564	565	566	567	568	569	570	571	572	573	574	575	576	577	578	579	580	581	582	583	584	585	586	587	588	589	590	591	592	593	594	595	596	597	598	599	600	601	602	603	604	605	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620	621	622	623	624	625	626	627	628	629	630	631	632	633	634	635	636	637	638	639	640	641	642	643	644	645	646	647	648	649	650	651	652	653	654	655	656	657	658	659	660	661	662	663	664	665	666	667	668	669	670	671	672	673	674	675	676	677	678	679	680	681	682	683	684	685	686	687	688	689	690	691	692	693	694	695	696	697	698	699	700	701	702	703	704	705	706	707	708	709	710	711	712	713	714	715	716	717	718	719	720	721	722	723	724	725	726	727	728	729	730	731	732	733	734	735	736	737	738	739	740	741	742	743	744	745	746	747	748	749	750	751	752	753	754	755	756	757	758	759	760	761	762	763	764	765	766	767	768	769	770	771	772	773	774	775	776	777	778	779	780	781	782	783	784	785	786	787	788	789	790	791	792	793	794	795	796	797	798	799	800	801	802	803	804	805	806	807	808	809	810	811	812	813	814	815	816	817	818	819	820	821	822	823	824	825	826	827	828	829	830	831	832	833	834	835	836	837	838	839	840	841	842	843	844	845	846	847	848	849	850	851	852	853	854	855	856	857	858	859	860	861	862	863	864	865	866	867	868	869	870	871	872	873	874	875	876	877	878	879	880	881	882	883	884	885	886	887	888	889	890	891	892	893	894	895	896	897	898	899	900	901	902	903	904	905	906	907	908	909	910	911	912	913	914	915	916	917	918	919	920	921	922	923	924	925	926	927	928	929	930	931	932	933	934	935	936	937	938	939	940	941	942	943	944	945	946	947	948	949	950	951	952	953	954	955	956	957	958	959	960	961	962	963	964	965	966	967	968	969	970	971	972	973	974	975	976	977	978	979	980	981	982	983	984	985	986	987	988	989	990	991	992	993	994	995	996	997	998	999	1000

Narrowband Channels

- Two may be combined provided that the lower channel number is odd (e.g., 1, 3, 5)
- Four may be combined provide that the lower channel number is $1 + 4n$, $n = 0$ to 479 (e.g., 1, 5, 1917)
- Channel numbers for combined channels are designated by the lowest and highest channel numbers separated by a hyphen, e.g., "1-2" and "1-4".
- Narrowband channels must maintain a data throughput efficiency of not less than 4.8 kbps for each 6.25 kHz of bandwidth

General Use
Interoperability
Reserve
State License
Low Power
2ndary Trunking
I/O Nationwide Call
I/O Low Speed Data

960 Narrowband Mobile Channels (6.25 kHz each, aggregate to 25 kHz)

Narrowband Channels

- Two may be combined provided that the lower channel number is odd (e.g., 1, 3, 5)
- Four may be combined provide that the lower channel number is $1 + 4n$, $n = 0$ to 479 (e.g., 1, 5, 1917)
- Channel numbers for combined channels are designated by the lowest and highest channel numbers separated by a hyphen, e.g., "1-2" and "1-4".
- Narrowband channels must maintain a data throughput efficiency of not less than 4.8 kbps for each 6.25 kHz of bandwidth

General Use
Interoperability
Reserve
State License
Low Power
2ndary Trunking
I/O Nationwide Call
I/O Low Speed Data

Project 25 Common Air Interface Interoperability Channel Technical Parameters

Certain common P25 parameters need to be defined to ensure digital radios operating on the 700 MHz Interoperability Channels can communicate. This is analogous to defining the common CTCSS tone used on NPSPAC analog Interoperability channels.

Network Access Code

In the Project 25 Common Air Interface definition, the Network Access Code (NAC) is analogous to the use of CTCSS and CDCSS signals in analog radio systems. It is a code transmitted in the pre-amble of the P25 signal and repeated periodically throughout the transmission. Its purpose is to provide selective access to and maintain access to a receiver. It is also used to block nuisance and other co-channel signals. There are up to 4096 of these NAC codes. For ease of migration in other frequency bands, a NAC code table was developed which shows a mapping of CTCSS and CDCSS signals into corresponding NAC codes. Document TIA/EIA TSB102.BAAC contains NAC code table and other Project 25 Common Air Interface Reserve Values.

The use of NAC code \$293 is required for the 700 MHz Interoperability Channel NAC code.

Talk group ID

In the Project 25 Common Air Interface definition, the Talk group ID on conventional channels is analogous to the use of talk groups in trunking. In order to ensure that all users can communicate, all units should use a common Talk group ID.

Recommendation: Use P25 default value for Talk group ID = \$0001

Manufacturer's ID

The Project 25 Common Air Interface allows the ability to define manufacturer specific functions. In order to ensure that all users can communicate, all units should not use a specific Manufacturer's ID, but should use the default value of \$00.

Message ID

The Project 25 Common Air Interface allows the ability to define specific message functions. In order to ensure that all users can communicate, all units should use the default Message ID for unencrypted messages of \$00000000000000000000.

Encryption Algorithm ID and Key ID

The Project 25 Common Air Interface allows the ability to define specific encryption algorithms and encryption keys. In order to ensure that all users can communicate, encryption should not be used on the Interoperability Calling Channels, all units should use the default Algorithm ID for defaults may be used for the other Interoperability channels when encryption is not used.

Use of encryption is allowed on the other Interoperability channels. Regional Planning Committees need to define appropriate Message ID, Encryption Algorithm ID, and Encryption Key ID to be used in the encrypted mode on Interoperability channels.

19 APPENDIX G – Simplified 700MHz Pre-Assignment Rules

Introduction

This paper describes a process for coordinating the initial block assignments of 700 MHz channels before details of actual system deployments are available. In this initial phase, there is little actual knowledge of the specific equipment to be deployed and the exact antenna site locations. As a result, a simple, high-level method is proposed to establish guidelines for frequency coordination. When actual systems are deployed, additional details will be known and the system designers will be required to select specific sites and supporting hardware to control interference.

Overview

Assignments will be based on a defined service area for each applicant. This will normally be an area defined by geographical or political boundaries such as city, county or by a data file consisting of line segments creating a polygon that encloses the defined area. The service contour is normally allowed to extend slightly beyond the geopolitical boundaries such that systems can be designed for maximum signal levels within the boundaries, or coverage area. Systems must also be designed to minimize signal levels outside their geopolitical boundaries to avoid interference into the coverage area of other co-channel users.

For co-channel assignments, the 40 dB μ service contour will be allowed to extend beyond the defined service area by 3 to 5 miles, depending on the type of environment: urban, suburban or rural. The co-channel 5 dB μ interfering contour will be allowed to touch but not overlap the 40 dB μ service contour of the system being evaluated. All contours are F(50,50).

For adjacent and alternate channels, the 60 dB μ interfering contour will be allowed to touch but not overlap the 40 dB μ service contour of the system being evaluated. All contours are F(50,50).

Discussion

Based upon the ERP/HAAT (effective radiated power/height above average terrain) limitations referenced in 47CFR Section 90.541(a), the maximum field strength will be limited to 40 dB relative to 1 μ V/m (customarily denoted as 40 dB μ). It is assumed that this limitation will be applied similar to the way it is applied in the 821-824/866-869 MHz band. A 40 dB μ field strength can be deployed up to a defined distance beyond the edge of the service area, based on the size of the service area or type of applicant, i.e., city, county, or statewide system. This is important so that public safety systems have adequate margins for reliability within their service area in the presence of interference, including the potential for interference from CMRS (Commercial Mobile Radio Service) infrastructure in adjacent bands.

The value of 40 dBμ in the 700 MHz band corresponds to a signal of -92.7 dBm, received by a half-wavelength dipole ($\lambda/2$) antenna. The thermal noise floor for a 6.25 KHz bandwidth receiver would be in the range of -126 dBm, so there is a margin of approximately 33 dB available for noise limited reliability. Figure 1 shows the various interfering sources and how they accumulate to form a composite noise floor that can be used to determine the reliability or probability of achieving the desired performance in the presence of various interfering sources with differing characteristics.

If CMRS out-of-band emissions (OOBE) noise is allowed to be equal to the original thermal noise floor, there is a 3 dB reduction⁷ in the available margin. This lowers the reliability and/or the channel performance of Public Safety systems. The left side of Figure 1 shows that the original 33 dB margin is reduced by 3 dB to only 30 dB available to determine “noise + CMRS OOBE limited” performance and reliability.

There are also different technologies with various channel bandwidths and different performance criteria. C/N in the range of 17 – 20 dB is required to achieve channel performance.

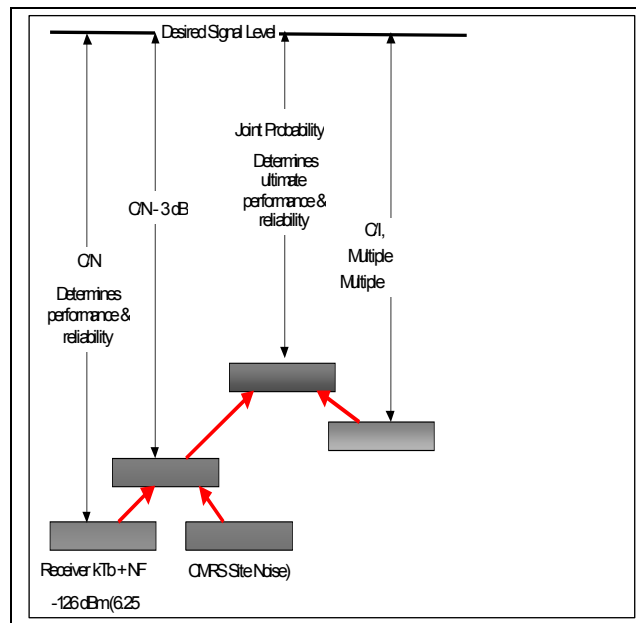


Figure 1 - Interfering Sources Create A “Noise” Level Influencing Reliability

In addition, unknown adjacent and alternate channel assignments need to be accounted for. The co-channel and adjacent/alternate sources are shown in the right hand side of Figure 1. At the edge of the service area, there would normally be only a single co-channel source, but there could potentially be several adjacent or alternate channel sources involved. It is recommended that co-channel assignments limit interference to <1% at the edge of the service area (worst-case mile). A C/I ratio of 26.4 dB plus the required capture value (~10 dB) is required to achieve this goal.⁸

⁷

⁸

TIA TR8 made this 3 dB allowance for CMRS OOBE noise during the meetings in Mesa, AZ, January 2001.

The ultimate performance and reliability has to take into consideration both the noise sources (thermal & CMRS OOB) and all the interference sources. The center of Figure 1 shows that the joint probability that both performance criteria and interference criteria are met must be determined.

Table 1 shows estimated performance considering the 3 dB rise in the noise floor at the 40 dBμ signal level. Performance varies due to the different Cf/N requirements and noise floors of the different modulations and channel bandwidths.

Note that since little is known about the affects of terrain, an initial lognormal standard deviation of 8 dB is used.

Comparison of Joint Reliability for Various

Channel Bandwidth	6.25 KHz	12.5 KHz	12.5 KHz	25.0 KHz
Receiver ENBW (kHz)	6	6	9	18
Noise Figure (10dB)	10	10	10	10
Receiver Noise Floor (dBm)	-126.22	-126.22	-124.46	-121.45
Rise in Noise Floor (dB)	3.00	3.00	3.00	3.00
New Receiver Noise Floor (dB)	-123.22	-123.22	-121.46	-118.45
40 dBu= -92.7 dBm	-92.7	-92.7	-92.7	-92.7
Receiver Capture (dB)	10.0	10.0	10.0	10.0
Noise Margin (dB)	30.52	30.52	28.76	25.75
C/N Required for DAQ = 3	17.0	17.0	18.0	20.0
C/N Margin (dB)	13.52	13.52	10.76	5.75
Standard Deviation (8 dB)	8.0	8.0	8.0	8.0
Z	1.690	1.690	1.345	0.718
Noise Reliability (%)	95.45%	95.45%	91.06%	76.37%
C/I for < 1% prob of capture	36.4	36.4	36.4	36.4
I (dBu)	3.7	3.7	3.7	3.7
I (dBm)	-129.0	-129.0	-129.0	-129.0
Joint Probability (C & I)	94.7%	94.7%	90.4%	76.1%
40 dBu = -92.7 dBm @ 770 MHz				

Table 1 Joint Probability For Project 25, 700 MHz Equipment Configurations.

These values are appropriate for a mobile on the street, but are considerably short to provide reliable communications to portables inside buildings.

Portable In-Building Coverage

Most Public Safety communications systems today are designed for portable in-building⁹ coverage and the requirement for >95 % reliable coverage. To analyze the impact of requiring portable in building coverage and designing to a 40 dBμ service contour, several scenarios are presented. The different scenarios involve a given separation from the desired sites. Whether simulcast or multi-cast is used in wide-area systems, the antenna sites must be placed near the service area boundary and directional antennas, directed into the service area, must be used. The impact of simulcast is included to show that the 40 dBμ service contour must be able to fall outside the edge of the service area in order to meet coverage requirements at the edge of the service area. From the analysis, recommendations are made on how far the 40 dBμ service contour should extend beyond the service area.

Table 2 estimates urban coverage where simulcast is required to achieve the desired portable in building coverage. Several assumptions are required to use this estimate:

- Distance from the location to each site. Equal distance is assumed.
- CMRS noise is reduced when entering buildings. This is not a guarantee as the type of deployments is unknown. It is possible that CMRS units may have transmitters inside buildings. This could be potentially a large contributor unless the CMRS OOB is suppressed to TIA's most recent recommendation and the "site isolation" is maintained at 65 dB minimum.
- The 40 dBμ service contour is allowed to extend beyond the edge of the service area boundary.
- Other configurations may be deployed utilizing additional sites, lower tower heights, lower ERP and shorter site separations.

Estimated Performance at 2.5 miles from each site				
Channel Bandwidth	6.25 KHz	12.5 KHz	12.5 KHz	25.0 KHz
Receiver Noise Floor (dBm)	-126.20	-126.20	-124.50	-118.50
Signal at 2.5 miles (dBm)	-72.7	-72.7	-72.7	-72.7
Margin (dB)	53.50	53.50	51.80	45.80
C/N Required for DAQ = 3	17.0	17.0	18.0	20.0
Building Loss (dB)	20	20	20	20
Antenna Loss (dBd)	8	8	8	8
Reliability Margin	8.50	8.50	5.80	-2.20
Z	1.0625	1.0625	0.725	-0.275
Single Site Noise Reliability (%)	85.60%	85.60%	76.58%	39.17%
Simulcast with 2 sites	97.93%	97.93%	94.51%	62.99%
Simulcast with 3 sites	99.70%	99.70%	98.71%	77.49%
Simulcast with 4 sites	99.96%	99.96%	99.70%	86.30%

Table 2, Estimated Performance From Site(s) 2.5 Miles From Typical Urban Buildings.

⁹ Building penetration losses typically required for urban = 20 dB, suburban = 15 dB, rural = 10 dB.

Table 2 shows for the example case of 2.5 miles a single site cannot provide >95% reliability. Either more sites must be used to reduce the distance or other system design techniques must be used to improve the reliability. For example, the table shows that simulcast can be used to achieve public safety levels of reliability at this distance. Table 2 also shows that the difference in performance margin requirements for wider bandwidth channels requires more sites and closer site-to-site separation.

Figures 2 and 3 show how the configurations would potentially be deployed for a typical site with 240 Watts ERP. This is based on:

- 75 Watt transmitter, 18.75 dBW
 - 200 foot tower
 - 10 dBd 180 degree sector antenna +10.0 dBd
 - 5 dB of cable/filter loss. - 5.0 dB
- $23.75 \text{ dBW} \approx 240 \text{ Watts (ERPd)}$

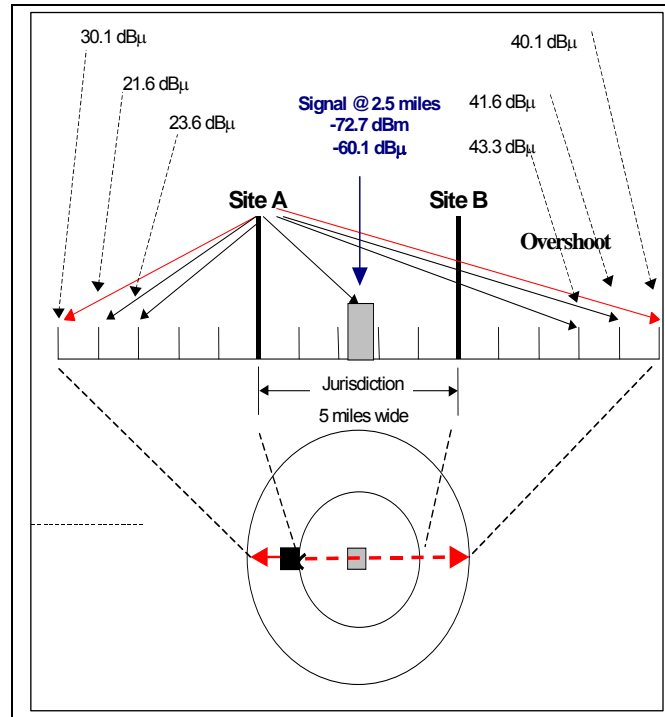


Figure 2 - Field Strength From Left Most Site.

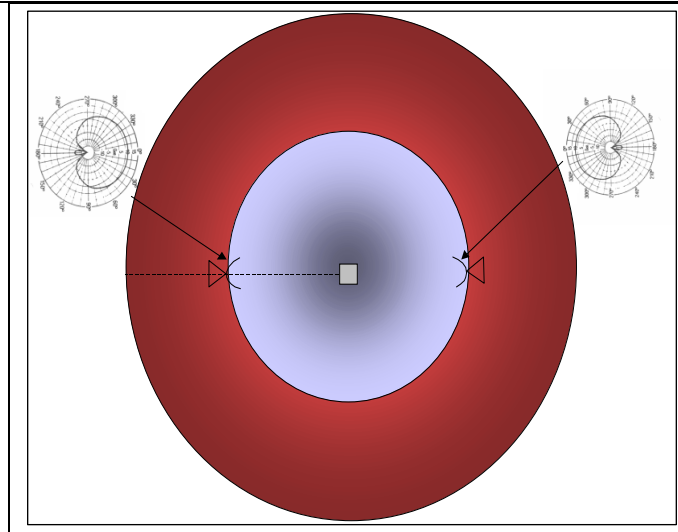


Figure 3 - Antenna Configuration Required To Limit Field Strength Off “Backside”

Figure 2 is for an urbanized area with a jurisdiction defined as a 5 mile circle. To provide the necessary coverage to portables in buildings at the center of the jurisdiction requires that the sites be placed along the edge of the service area and utilize directional antennas oriented toward the center of the service area (Figure 3). In this case, at 5 miles beyond the edge of the service area, the sites would produce a composite field strength of approximately 40 dB μ . Since one site is over 10 dB dominant, the contribution from the other site is not considered. The control of the field strength behind the site relies on a 20 dB antenna with a Front to Back Ratio (F/B) specification as shown in Figure 3. This performance may be optimistic due to back scatter off local obstructions in urbanized areas. However, use of antennas on the sides of buildings can assist in achieving better F/B ratios and the initial planning is not precise enough to prohibit using the full 20 dB.

The use of a single site at the center of the service area is not normally practical. To provide the necessary signal strength at the edge of the service area would produce a field strength 5 miles beyond in excess of 44 dB μ . However, if the high loss buildings were concentrated at the service area’s center, then potentially a single site could be deployed, assuming that the building loss sufficiently decreases near the edge of the service area allowing a reduction in ERP to achieve the desired reliability.

Downtilting of antennas, instead of directional antennas, to control the 40 dB μ is not practical in this scenario. For a 200 foot tall tower, the center of radiation from a 3 dB down-tilt antenna hits the ground at ~ 0.75 miles¹⁰. The difference in angular discrimination from a 200 foot tall tower at service area boundary at 5 miles and service contour at 10 miles is approximately 0.6 degrees, so ERP is basically the same as ERP toward the horizon. It would not be possible to achieve necessary signal strength at the service area boundary and have the 40 dB μ service contour be less than 5 miles away.

¹⁰ Use of high gain antennas with down-tilt on low-level sites is one of the causes of far-near interference experienced in the 800 MHz band.

Tables 3 and 4 represent the same configuration, but for less dense buildings. In these cases, the distance to extend the 40 dBμ service contour can be determined from Table 5.

Estimated Performance at 3.5 miles from each site

Channel Bandwidth	6.25 KHz	12.5 KHz	12.5 KHz	25 KHz
Receiver Noise Floor (dBm)	-126.20	-126.20	-124.50	-118.50
Signal at 3.5 miles (dBm)	-77.7	-77.7	-77.7	-77.7
Margin (dB)	48.50	48.50	46.80	40.80
C/N Required for DAQ = 3	17.0	17.0	18.0	20.0
Building Loss (dB)	15	15	15	15
Antenna Loss (dBd)	8	8	8	8
Reliability Margin	8.50	8.50	5.80	-2.20
Z	1.0625	1.0625	0.725	-0.275
Single Site Noise Reliability (%)	85.60%	85.60%	76.58%	39.17%
Simulcast with 2 sites	97.93%	97.93%	94.51%	62.99%
Simulcast with 3 sites	99.70%	99.70%	98.71%	77.49%
Simulcast with 4 sites	99.96%	99.96%	99.70%	86.30%

Table 3 - Lower Loss Buildings, 3.5 Mile From Site(s)

Estimated Performance at 5.0 miles from each site

Channel Bandwidth	6.25 KHz	12.5 KHz	12.5 KHz	25 KHz
Receiver Noise Floor (dBm)	-126.20	-126.20	-124.50	-118.50
Signal at 3.5 miles (dBm)	-82.7	-82.7	-82.7	-82.7
Margin (dB)	43.50	43.50	41.80	41.80
C/N Required for DAQ = 3	17.0	17.0	18.0	20.0
Building Loss (dB)	10	10	10	10
Antenna Loss (dBd)	8	8	8	8
Reliability Margin	8.50	8.50	5.80	-2.20
Z	1.0625	1.0625	0.725	-0.275
Single Site Noise Reliability (%)	85.60%	85.60%	76.58%	39.17%
Simulcast with 2 sites	97.93%	97.93%	94.51%	62.99%
Simulcast with 3 sites	99.70%	99.70%	98.71%	77.49%
Simulcast with 4 sites	99.96%	99.96%	99.70%	86.30%

Table 4 - Low Loss Buildings, 5.0 Miles From Site(s)

Note that the receive signals were adjusted to offset the lowered building penetration loss. This produces the same numerical reliability results, but allows increasing the site to building separation and this in turn lowers the magnitude of the “overshoot” across the service area.

Table 5 shows the field strength for a direct path and for a path reduced by a 20 dB F/B antenna. This allows the analysis to be simplified for the specific example being discussed.

	Site A Direct Path	Site B Back Side of 20 dB F/B Antenna
Overshoot Distance (mi)	Field Strength (dBμ)	Field Strength (dBμ)
1	73.3	53.3
2	63.3	43.3
2.5	60.1	40.1

3	57.5	37.5
4	53.3	33.5
5	50.1	30.1
...	...	
10	40.1	
11	38.4	
12	37.5	
13	36.0	
14	34.5	
15	33.0	

Table 5 - Field Strength Vs. Distance From Site

For the scenarios above, the composite level at the service contour is the sum of the signals from the two sites. The sum can not exceed 40 dBμ. Table 5 allows you to calculate the distance to the service contour given the distance from one of the sites.

Scenario 1: Refer to Figure 3a. Site B is just inside the service area boundary and the service contour must be <5 Miles outside the service area boundary. The signal level at the service contour from Site B is 30.1 dBμ. The signal level for Site A can be up to 40 dBμ, since, when summing two signals with >10 dB delta, the lower signal level has little effect (less than 0.4 dB in this case). Therefore, Site A can be 10 miles from the service contour, or 5 miles inside the service area boundary. The coverage performance for this scenario is shown in Table 2, above, for 20 dB building loss typical of urban areas.

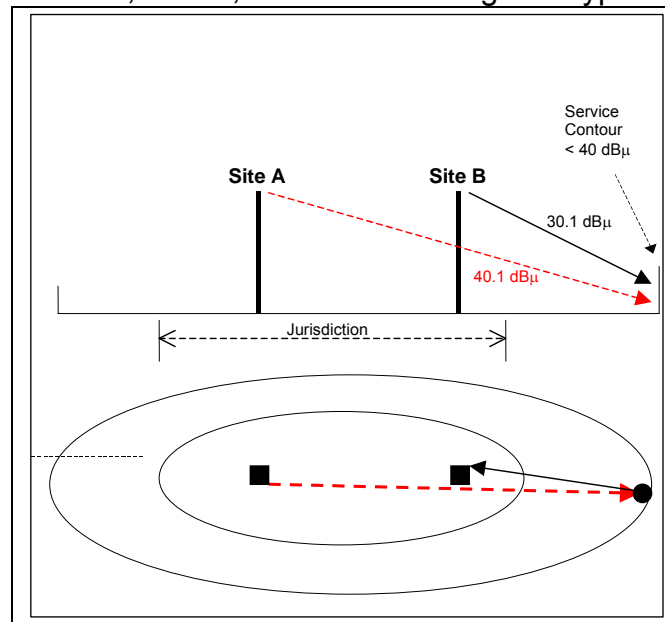


Figure 3a. Scenario 1 on of Use of Table 5

Scenario 2: Refer to bold data in Table 5. Site B is just inside the service area boundary and the service contour must be <4 miles outside the service area boundary. The signal level at the service contour from Site B is 33.5 dBμ. The signal level for Site A can be up to 38.4 dBμ. (See Appendix G.2 for a simple method to sum the powers of signals expressed in decibels.) The composite power level is 39.7 dBμ. Therefore, Site A can be slightly less than 11 miles from the service contour, or ~7 miles inside the

service area boundary. The coverage performance for this example is shown in Table 3, above, for 15 dB building loss typical of suburban areas.

Scenario 3: Site B is just inside the Service Area boundary and Service Contour must be <3 Miles outside Service Area boundary. Signal level at Service Contour from Site B is 37.5 dBμ . Signal level for Site A can be up to 36.4 dBμ . (See Appendix B simple method to sum signals expressed in decibels.) The composite power level is 40.0 dBμ . Therefore, Site A can be ~13 miles from the Service Contour, or ~10 miles inside the Service Area boundary. The coverage performance for this example is shown in Table 4, above, for 10 dB building loss typical of rural areas.

Service Contour Extension Recommendation

The resulting recommendation for extending the 40 dBμ service contour beyond the service area boundary is:

Type of Area	Extension (mi.)
Urban (20 dB Buildings)	5
Suburban (15 dB Buildings)	4
Rural (10 dB Buildings)	3

Table 6 - Recommended Extension Distance Of 40 dBμ Field Strength

Using this recommendation the 40 dBμ service contour can then be constructed based on the defined service area without having to perform an actual prediction.

Interfering Contour

Table 1 above shows that 36.4 dB of margin is required to provide 10 dB of co-channel capture and <1% probability of interference. Since the 40 dBμ service contour is beyond the edge of the service area, some relaxation in the level of interference is reasonable. Therefore, a 35 dB co-channel C/I ratio is recommended and is consistent with what is currently being licensed in the 821-824/866-869 MHz Public Safety band.

Co-Channel Interfering Contour Recommendation

Allow the constructed 40 dBμ F(50,50) service contour to extend beyond the edge of the defined service area by the distance indicated in Table 6. Allow the 5 dBμ F(50,50) interfering contour to intercept but not overlap the 40 dBμ service contour.

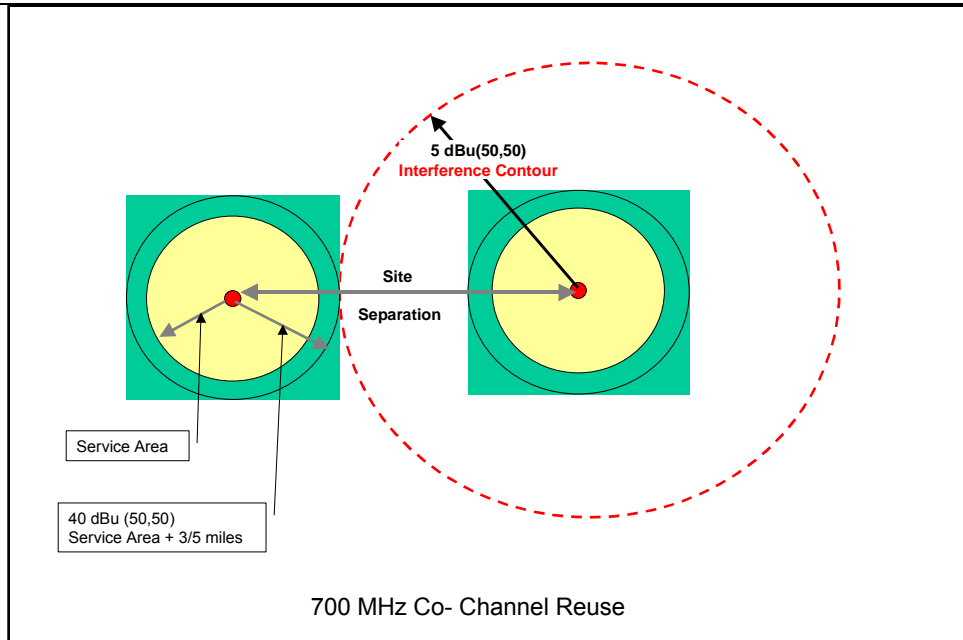


Figure 4 - Co-Channel Reuse Criterion

Adjacent and Alternate Channel Considerations

Adjacent and alternate channels are treated as being noise sources that alter the composite noise floor of a victim receiver. Using the 47 CFR § 90.543 values of ACCP can facilitate the coordination of adjacent and alternate channels. The C/I requirements for <1% interference can be reduced by the value of ACCPR. For example to achieve an X dB C/I for the adjacent channel that is -40 dBc a C/I of [X-40] dB is required. Where the alternate channel ACP value is -60 dBc, then the C/I = [X-60] dB is the goal for assignment(s). There is a compounding of interference energy, as there are numerous sources, i.e. co-channel, adjacent channels, and alternate channels plus the noise from CMRS OOB.

There is insufficient information in 47 CFR § 90.543 to include the actual receiver performance. Receivers typically have skirts that allow energy outside the bandwidth of interest to be received. In addition, the FCC defines ACCP differently than does the TIA. The term used by the FCC is the same as the TIA definition of ACP. The subtle difference is that ACCP defines the energy intercepted by a defined receiver filter (e.g., 6 KHz ENBW). ACP defines the energy in a measured bandwidth that is typically wider than the receiver (e.g., 6.25 KHz channel bandwidth). As a result, the FCC values are optimistic at very close spacing and somewhat pessimistic at wider spacings, as the typical receiver filter is less than the channel bandwidth.

In addition, as channel bandwidth is increased, the total amount of noise intercepted rises compared to the level initially defined in a 6.25 KHz channel bandwidth. However, the effect is diminished at very close spacings as the slope of the noise curve falls off rapidly. At greater spacings, the slope of the noise curve is essentially flat and the receiver's filter limits the noise to a rise in the thermal noise floor.

Digital receivers tend to be less tolerant to interference than analog. Therefore, a 3 dB reduction in the $C/(I+N)$ can reduce a $DAQ = 3$ to a $DAQ = 2$, which is threshold to complete muting in digital receivers. Therefore to maintain a $DAQ = 3$, at least 17 dB of fading margin plus the 26.4 dB margin for keeping the interference below 1% probability is required, for a total margin of 43.4 dB. However, this margin would be at the edge of the service area and the 40 dBμ service contour is allowed to extend past the edge of the service area.

Frequency drift is controlled by the FCC requirement for 0.4-ppm stability when locked. This equates to approximately a 1 dB standard deviation, which is negligible when associated with the recommended initial lognormal standard deviation of 8 dB and can be ignored.

Project 25 requires that a transceiver receiver have an ACIPR of 60 dB. This implies that an $ACCPR \geq 65$ dB will exist for a “companion receiver”. A companion receiver is one that is designed for the specific modulation. At this time the highest likelihood is that receivers will be deploying the following receiver bandwidths at the following channel bandwidths.

Estimated Receiver Parameters	
Channel Bandwidth	Receiver Bandwidth
6.25 KHz	5.5 KHz
12.5 KHz	5.5 or 9 KHz
25 KHz	18.0 KHz

Table 7 - Estimated Receiver Parameters

Based on 47 CFR ¶ 90.543 and the P25 requirement for an $ACCPR \geq 65$ dB into a 6.0 KHz channel bandwidth and leaving room for a migration from Phase 1 to Phase 2, allows for making the simplifying assumption that 65 dB $ACCPR$ is available for both adjacent 25 KHz spectrum blocks.

The assumption is that initial spectrum coordination sorts are based on 25 KHz bandwidth channels. This provides the maximum flexibility by using 65 dB $ACCPR$ for all but one possible combination of 6.25 KHz channels within the 25 KHz allotment.

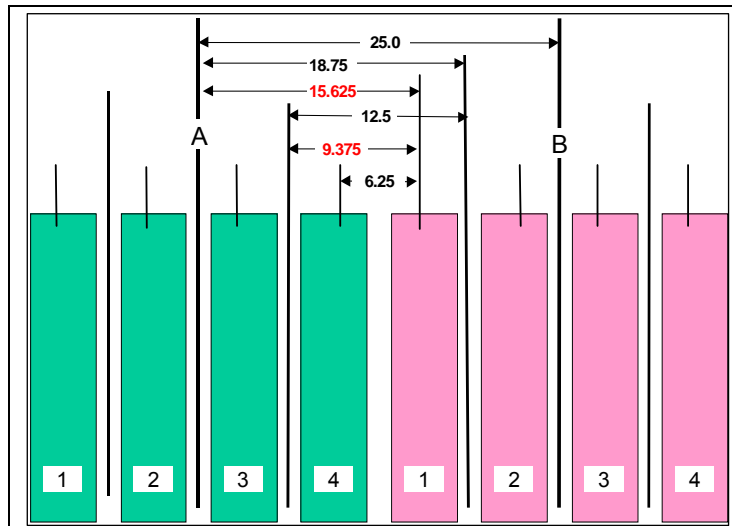


Figure 5, Potential Frequency Separations

Case	Spacing	ACCPR
25 KHz to 25 KHz	25 KHz	65 dB
25 KHz to 12.5 KHz	18.750 KHz	65 dB
25 KHz to 6.25 KHz	15.625 KHz	>40 dB
12.5 KHz to 12.5 KHz	12.5 KHz	65 dB
12.5 KHz to 6.25 KHz	9.375 KHz	>40 dB
6.25 KHz to 6.25 KHz	6.25 KHz	65 dB

Table 8 - ACCPR Values For Potential Frequency Separations

All cases meet or exceed the FCC requirement. The most troublesome cases occur where the wider bandwidths are working against a Project 25 Phase 2 narrowband 6.25 KHz channel. This pre-coordination based upon 25 KHz spectrum blocks still works if system designers and frequency coordinators keep this consideration in mind and move the edge 6.25 KHz channels inward away from the edge of the system. This approach allows a constant value of 65 dB ACCPR to be applied across all 25 KHz spectrum blocks regardless of what channel bandwidth is eventually deployed. There will also be additional coordination adjustments when exact system design details and antenna sites are known.

For spectrum blocks spaced farther away, it must be assumed that transmitter filtering, in addition to transmitter performance improvements due to greater frequency separation, will further reduce the ACCPR.

Therefore it is recommended that a consistent value of 65 dB ACCPR be used for the initial coordination of adjacent 25 KHz channel blocks. Rounding to be conservative due to the possibility of multiple sources allows the Adjacent Channel Interfering Contour to be approximately 20 dB above the 40 dBμ service contour, at 60 dBμ.

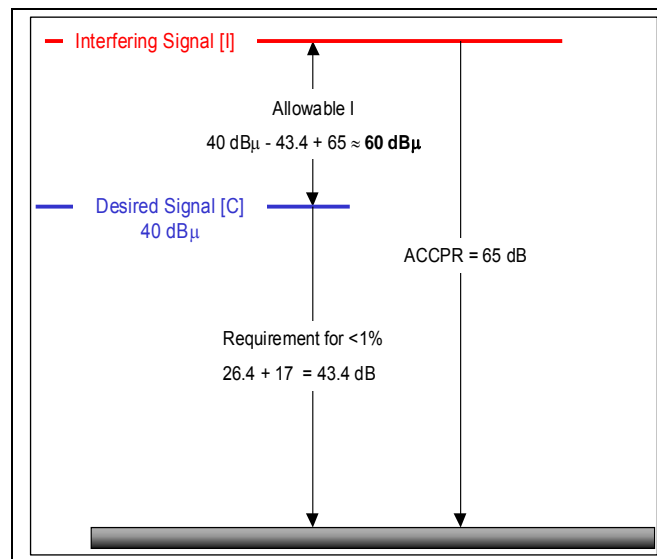


Figure 6 - Adjusted Adjacent 25 KHz Channel Interfering Contour Value

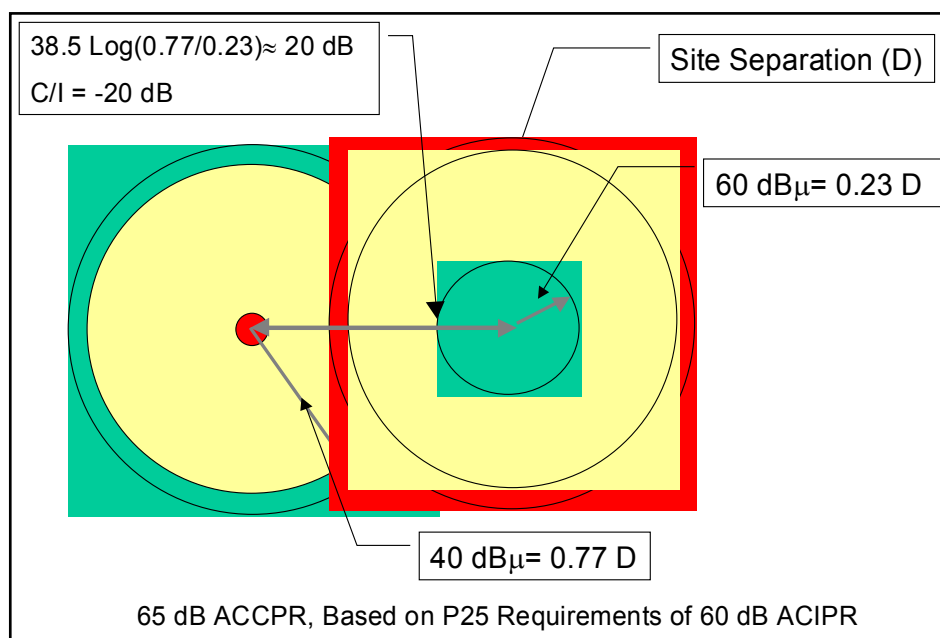


Figure 7 - Example Of Adjacent/Alternate Overlap Criterion

Adjacent Channel Interfering Contour Recommendation

An adjacent (25 KHz) channel shall be allowed to have its 60 dBμ F(50,50) interfering contour touch but not overlap the 40 dBμ F(50,50) service contour of a system being evaluated. Evaluations should be made in both directions.

Final Detailed Coordination

This simple method is only adequate for presorting large blocks of spectrum to potential entities. A more detailed analysis should be executed in the actual design phase to take all the issues into consideration.

Additional factors that should be considered include:

- Degree of service area overlap
- Different size of service areas
- Different ERPs and HAATs
- Actual terrain and land usage
- Differing user reliability requirements
- Migration from Project 25 Phase 1 to Phase 2
- Actual ACCP
- Balanced systems
- Mobiles vs. portables
- Use of voting
- Use of simulcast
- Radio specifications
- Simplex operation

- Future unidentified requirements.

Special attention needs to be paid to the use of simplex operation. In this case, an interferer can be on an offset adjacent channel and in extremely close proximity to the victim receiver. This is especially critical in public safety where simplex operations are frequently used at a fire scene or during police operation. This type of operation is also quite common in the lower frequency bands. In those cases, evaluation of base-to-base as well as mobile-to-mobile interference should be considered and evaluated.

Appendix G.1

Carrier to Interference Requirements

There are two different ways that interference is considered.

- Co-channel
- Adjacent and alternate channels

Both involve using a C/I ratio. The C/I ratio requires a probability be assigned. For example, if 10% interference is specified, the C/I implies 90% probability of successfully achieving the desired ratio. 1% interference means that there is a 99% probability of achieving the desired C/I.

(1)

This can also be written in a form using the standard deviate unit (Z). In this case the Z for the desired probability of achieving the C/I is entered. For example, for a 90% probability of achieving the necessary C/I, $Z = 1.28$.

(2)

The most common requirements for several typical lognormal standard deviations (σ) are included in the following table based on Equation (2).

Location Standard Deviation (σ) dB	5.6	6.5	8	10
Probability %				
10%	10.14 dB	11.77 dB	14.48 dB	18.10 dB
5%	13.07 dB	15.17 dB	18.67 dB	23.33 dB
4%	13.86 dB	16.09 dB	19.81 dB	24.76 dB
3%	14.90 dB	17.29 dB	21.28 dB	26.20 dB
2%	16.27 dB	18.88 dB	23.24 dB	29.04 dB
1%	18.45 dB	21.42 dB	26.36 dB	32.95 dB

Table A1 - Probability Of Not Achieving C/I For Various Location Lognormal Standard Deviations

These various relationships are shown in Figure A1, a continuous plot of equation(s) 1 and 2.

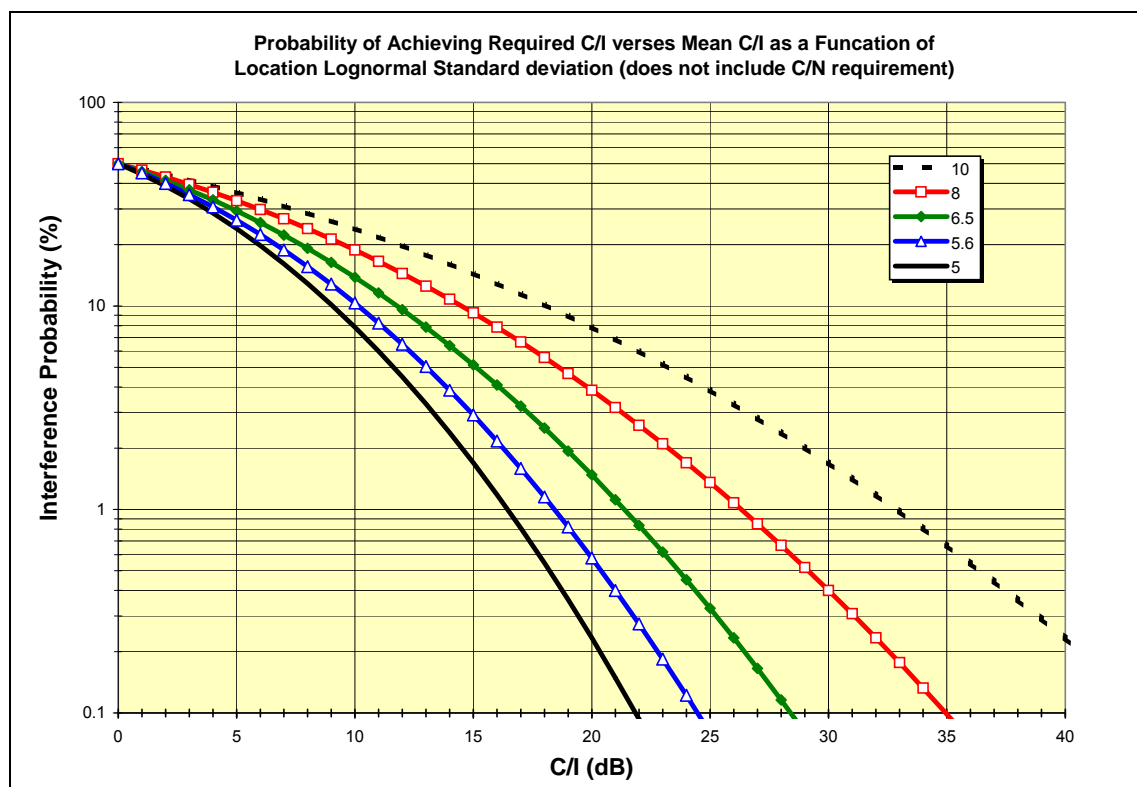


Figure A1 - Probability Of Achieving Required C/I As A Function Of Location Standard Deviation

For co-channel the margin needs to include the capture requirement. When this is done, then a 1% probability of co-channel interference can be rephrased to mean: There is a 99% probability that the capture ratio will be achieved. The capture ratio varies with the type of modulation. Older analog equipment has a capture ratio of approximately 7 dB. Project 25 FDMA is specified at 9 dB. Figure A1 shows the C/I requirement without including the capture requirement.

The 8 dB value for lognormal location standard deviation is reasonable when little information is available. Later when a detailed design is required, additional details and high-resolution terrain and land usage databases will allow a lower value to be used. The TIA recommended value is 5.6 dB. Using 8 dB initially and changing to 5.6 dB provides additional flexibility necessary to complete the final system design.

To determine the desired probability that both the C/N and C/I will be achieved requires that a joint probability be determined. Figure A2 shows the effects of a family of various levels of C/N reliability and the joint probability (Y-axis) in the presence of various probabilities of interference. Note that at 99% reliability with 1% interference (X-axis) that the reduction is nearly the difference. This is because the very high noise reliability is degraded by the interference, as there is little probability that the noise criterion will not be satisfied. At 90%, the 1% interference has a greater likelihood that it will occur simultaneously with the noise criterion not being met, resulting in less degradation of the 90%.

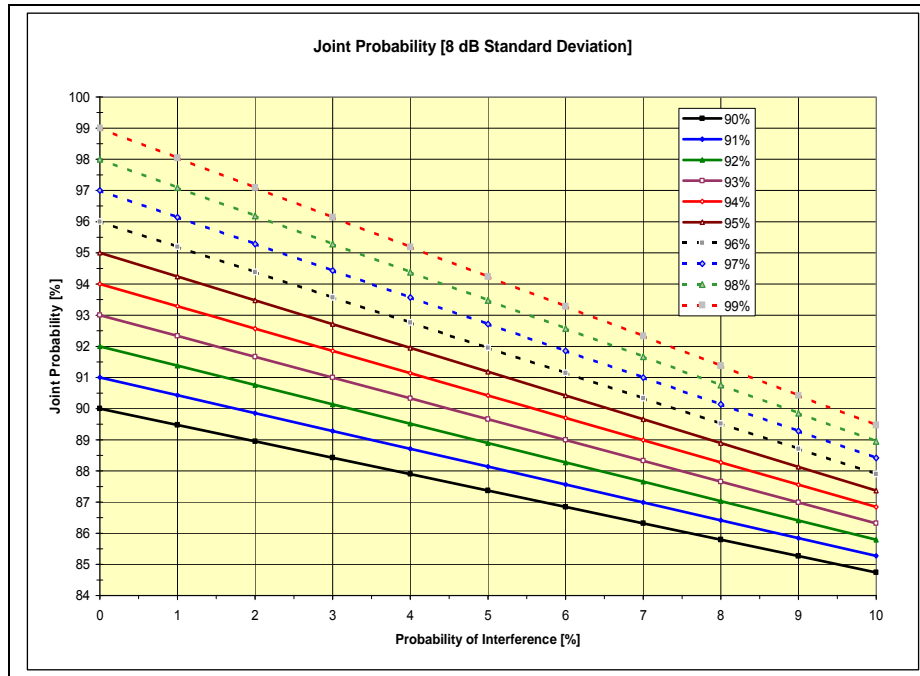
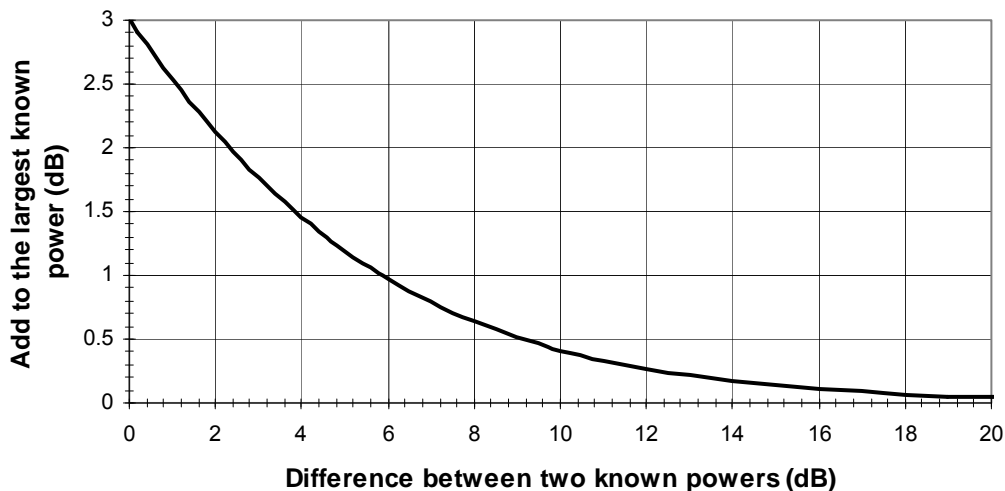


Figure A2 - Effect Of Joint Probability On The Composite Probability

For adjacent and alternate channels, the channel performance requirement must be added to the C/I ratio. When this is applied, then a 1% probability of adjacent/alternate channel interference can be rephrased to mean: There is a 99% probability that the channel performance ratio will be achieved.

Appendix G.2

Adding Two Known Non-Coherent Powers



In order to sum the power of two or more signals expressed in dBm or dBμ, the level should be converted to a voltage level or a power level, summed (root of the sum of the squares), and then converted back to dBm or dBμ.

The chart above provides a simple method to sum two power levels expressed in dBm or dBμ. First find the difference between the two signals on the horizontal axis. Go up to the curve and across to the vertical axis to find the power delta. Add the power delta to the larger of the two original signal levels.

Example 1: Signal A is 36.4 dBμ. Signal B is 37.5 dBμ. The difference is 1.1 dB. Power delta is about 2.5 dB. Composite signal level is 37.5 dBμ + 2.5 dB = 40 dBμ.

Example 2: Signal A is -96.3 dBm. Signal B is -95.2 dBm. The difference is 1.1 dB. Power delta is about 2.5 dB. Composite signal level is -95.2 dBm + 2.5 dB = -92.7 dBm.

20 APPENDIX H - INCIDENT COMMAND SYSTEM

National Standards for NIMS

NATIONAL INCIDENT MANAGEMENT SYSTEM

See: www.fema.gov/pdf/nims/nims_training_development.pdf

Introduction

In Homeland Security Presidential Directive (HSPD-5), Management of Domestic Incidents, the President directed the Secretary of Homeland Security to develop and administer a National Incident Management System (NIMS). On March 1, 2004, Secretary Ridge issued the NIMS to provide a comprehensive national approach to incident management, applicable to all jurisdictional levels across functional disciplines. The NIMS provides a consistent nationwide approach for federal, state, tribal, and local governments to work effectively and efficiently together to prepare for, prevent, respond to, and recover from domestic incidents, regardless of cause, size, or complexity. The NIMS establishes standard incident management processes, protocols, and procedures so that all responders can work together more effectively.

In order to be in line with HSPD-5, jurisdictions are required to be compliant with the National NIMS standards that are released annually. For additional information on becoming compliant, go to http://www.fema.gov/emergency/nims/nims_compliance.shtm, or contact your local emergency management agency.

Region 54 will conform to the national standards as applicable. Some of the national standards that will be followed include:

- Use of the Incident Command System (ICS).
- Common terminology that allows entities to work together across a wide variety of incident management functions and hazard scenarios.
- Comprehensive Resource Management: Resource management includes processes for categorizing, ordering, dispatching, tracking, and recovering resources. Agencies will be strongly urged to follow NIMS guidelines and the National Response Framework ESF #2 "Communications".
- Integrated Communications: Incident communications are facilitated through the development and use of a common communications plan and interoperable communications processes and architectures. Region 54 members will be strongly urged to participate in Communications Unit Leader and, IS-705 "Communication and Information Management", and other NIMS related classes as they become available.
- The IAP includes the overall incident objectives and strategies established by the IC or UC. The Planning Section is responsible for developing and

documenting the IAP. The IAP will typically contain a number of components. See example below:

IAP Component	Normally Prepared By
Incident Objectives	Incident Commander
Organization List or Chart	Resources Unit
Assignment List	Resources Unit
Communications Plan	Communication Unit
Responder Medical Plan	Medical Unit
Incident Map	Situation Unit
Health and Safety Plan	Safety Officer

21 APPENDIX I - MEMORANDUM OF UNDERSTANDING

And SHARING AGREEMENT TEMPLATES

Memorandum of Understanding Template

(To be placed on State Interoperability Executive Committee or RPC letterhead)

Minimum Criteria Required in the MOU

TO: (signer of application and title)
(agency name)

FROM: (name), Chairman

DATE: (mm/dd/yyyy)

SUBJECT: Memorandum of Understanding for Operating the 700 MHz
Interoperability Channels

This memorandum of understanding (hereafter referred to as MOU) shall be attached to the application when submitting it. By virtue of signing and submitting the application and this MOU, (agency name) (hereafter referred to as APPLICANT) affirms its willingness to comply with the proper operation of the interoperability channels as dictated by the Regional Planning Committee (hereafter referred to as RPC) as approved by the Federal Communications Commission (hereafter referred to as FCC) and by the conditions of this MOU.

The APPLICANT shall abide by the conditions of this MOU, which are as follows:

- To operate by all applicable state, county, and city laws/ordinances;
- To utilize plain language for all transmissions;
- To monitor the calling channel(s) and coordinate the use of the tactical channels;
- To identify inappropriate use and prevent the same from occurring in the future;
- To limit secondary trunked operation to the interoperability channels specifically approved on the application and limited to channels listed below;
- To relinquish secondary trunked operation of approved interoperability channels to requests for primary conventional access with same or higher priority; and
- To mitigate contention for channels by exercising the priority levels identified in this MOU.

The preceding conditions are the primary, though not complete, requirements for operating in the interoperability channels. Refer to the Regional Plan for the complete requirements list.

Priority Levels:

1. Disaster or extreme emergency operation for mutual aid and interagency communications;
2. Emergency or urgent operation involving imminent danger to life or property;
3. Special event control, generally of a preplanned nature (including task force operations);
4. Single agency secondary communications.

To resolve contention within the same priority, the channel should go to the organization with the wider span of control/authority. This shall be determined by the State Interoperability Executive Committee or RPC for the operation or by the levels of authority/government identified in the contention.

For clarification purposes and as an aid to operate as authorized, any fixed base or mobile relay stations identified on the license for temporary locations (FCC station class FBT or FB2T, respectively) shall remain within the licensed area of operation. Similarly, vehicular/mobile repeater stations (FCC station class MO3) shall remain within the licensed area of operation. Federal agencies are permitted access to interoperability channels only as authorized by 47 CFR 2.102 (c) & 2.103 and Part 7.12 of the NTIA Manual.

Any violation of this MOU, the Regional Plan, or FCC Rule shall be addressed immediately. The first level of resolution shall be between the parties involved, followed by the State Interoperability Executive Committee or RPC, and finally the FCC.

Secondary Trunked Channels

7TAC51 – Channel 23 & 24	7TAC71 – Channel 657 & 658
7TAC52 – Channel 103 & 104	7TAC72 – Channel 737 & 738
7TAC53 – Channel 183 & 184	7TAC73 – Channel 817 & 818
7TAC54 – Channel 263 & 264	7TAC74 – Channel 896 & 898

(typed or printed name of authorized signatory)

(authorized signatory identified above and consistent with application)

(date)

(agency name)

(agency address)

(agency address)

(agency address)

(signatory's phone)

(signatory's email address, if available)

(Agency letterhead of licensee)

SUBJECT: Sharing Agreement

[illegible]

This written agreement applies to operations in cooperation and coordination with activities of the licensee per Region (#) Plan, FCC Rules 47 CFR Parts 2.102(c), 2.103 and 90.421 and Part 7.12 of the NTIA Manual. Furthermore, grantor reserves the right to effectively eliminate the possibility of unauthorized operation, which ultimately could result in terminating this written agreement.

74 ☐

22 APPENDIX J - ADJACENT REGION CONCURRENCE LETTERS

10/9/08 Date

Mr. William J. Carter, Chairperson
Public Safety Regional Planning Committee
Region 54
10928 South Lawndale
Chicago, IL 60655
Email: carterb@apco911.org

Dear Mr. Carter:

Region 14 (Indiana) is in receipt of your proposed 700 MHz Regional Plan, submitted to this Committee on October 18, 2007. Region 14 met on dd/mm/yy and formally approved Region 54's Plan.

This letter serves as the official, written concurrence of Region 14 to your proposed 700 MHz Regional Plan.

Sincerely,

A handwritten signature in black ink, appearing to read 'H. Anthony Stantz', with a stylized, sweeping flourish at the end.

H. Anthony Stantz, Chairperson
Public Safety Regional Planning Committee
Region 14
Indiana State Police Communications
IGCN Room N301
100 N. Senate Ave.
Indianapolis, IN 46204

1 APPENDIX I - DISPUTE RESOLUTION PROCESS

Inter-Regional Coordination Procedures and Procedures for Resolution of Disputes That May Arise Under FCC Approved Plans

Coordination Procedures

1. INTRODUCTION

- 1.1. This is a mutually agreed upon Inter-Regional Coordination Procedures Agreement (Agreement) by and between the following 700 MHz Regional Planning Committees: Region 54 (Southern Lake Michigan) and Region 14 (Indiana).

2. INTER-REGIONAL COORDINATION AGREEMENT

The following is the specific procedure for inter-regional coordination which has been agreed upon by Regions 54 and 14, and which will be used by the Regions to coordinate with adjacent Regional Planning Committees.

- 2.1. An application filing window is opened or the Region announces that it is prepared to begin accepting applications on a first-come/first-served basis.
- 2.2. Applications by eligible entities are accepted.
- 2.3. An application filing window (if this procedure is being used) is closed after appropriate time interval.
- 2.4. Intra-regional review and coordination takes place, including a technical review resulting in assignment of channels.
- 2.5. After intra-regional review, a copy of those frequency-specific applications requiring adjacent Region approval, including a definition statement of proposed service area, shall then be forwarded to the adjacent Region(s) for review.¹ This information will be sent to the adjacent Regional chairperson(s) using the CAPRAD database.

¹ If an applicant's proposed service area or interference contour extends into an adjacent Public Safety Region(s), the application must be approved by the affected Region(s). Service area shall normally be defined as the area included within the geographical boundary of the applicant, plus three (3) miles. Interference contour shall normally be defined as a 5 dBμ co-channel contour or a 60 dBμ adjacent channel contour. Other definitions of service area or interference shall be justified with an accompanying *Memorandum of Understanding (MOU)* or other application documentation between agencies, i.e., mutual aid agreements.

- 2.6. The adjacent Region reviews the application. If the application is approved, a letter of concurrence shall be sent, via the CAPRAD database, to the initiating Regional chairperson within thirty (30) calendar days.

3. Dispute Resolution

If the adjacent Region(s) cannot approve the request, the adjacent Regions shall document the reasons for partial or non-concurrence, and respond within ten (10) calendar days via email. If the applying Region cannot modify the application to satisfy the objections of the adjacent Region, then a working group comprised of representatives of the two Regions shall be convened within thirty (30) calendar days to attempt to resolve the dispute. The working group shall then report its findings within thirty (30) calendar days to the Regional Chairperson's email (CAPRAD database) address. Findings may include, but not be limited to:

- Unconditional concurrence;
 - Conditional concurrence contingent upon modification of applicant's technical parameters; or
 - Partial or total denial of proposed frequencies due to inability to meet co-channel/adjacent channel interference free protection to existing licensees within the adjacent Region.
- 3.1. If the Inter-Regional Working Group cannot resolve the dispute, then the matter shall be forwarded for evaluation to the National Plan Oversight Committee (NPOC)², of the National Public Safety Telecommunications Council. Each Region involved in the dispute shall include a detailed explanation of its position, including engineering studies and any other technical information deemed relevant. The NPOC will, within thirty (30) calendar days, report its recommendation(s) to the Regional chairpersons via the CAPRAD database. The NPOC's decision may support either of the disputing Regions or it may develop a proposal that it deems mutually advantageous to each disputing Region.
- 3.2. Where adjacent Region concurrence has been secured, and the channel assignments would result in no change to the Region's currently Commission-approved channel assignment matrix, the initiating Region may then advise the applicant(s) that their application may be forwarded to a frequency coordinator for processing and filing with the Commission.
- 3.3. Where adjacent Region concurrence has been secured, and the channel assignments would result in a change to the Region's currently Commission-approved channel assignment matrix, then

² The Regional Plan Oversight Committee (RPOC) is a committee within the National Public Safety Telecommunications Council (NPSTC) established to arbitrate disputes between 700 MHz Regions that cannot be resolved by the impacted Regions.

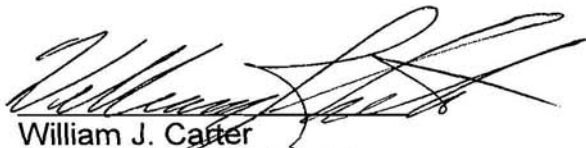
the initiating Region shall file with the Commission a Petition to Amend their current Regional plan's frequency matrix, reflecting the new channel assignments, with a copy of the Petition sent to the adjacent Regional chairperson(s).

- 3.4. Upon Commission issuance of an Order adopting the amended channel assignment matrix, the initiating Regional chairperson will send a courtesy copy of the Order to the adjacent Regional chairperson(s) and may then advise the applicant(s) that they may forward their applications to the frequency coordinator for processing and filing with the Commission.

4. CONCLUSION

- 4.1. IN AGREEMENT HERETO, Regions 54 and 14 do hereunto set their signatures the day and year first above written.

Respectfully,



William J. Carter
Chairperson, Region 54



H. Anthony Stantz
Chairperson, Region 14

Date: 6/9/08

INDIANA STATE POI
Indiana Government Center North
100 North Senate Avenue
Indianapolis, IN 46204-2259



51 7108 2133 3932 4388 6535

SF 35523 (R4/12-92)

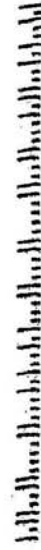


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0004236913 JUN 12 2008
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MAILED FROM ZIP CODE 46204



William J. Carter, Chairperson
Public Safety Regional Planning Committee
Region 54
10928 South Lawndale
Chicago, IL 60655

6065543313 C017



10/23/08 Date

Mr. William J. Carter, Chairperson
Public Safety Regional Planning Committee
Region 54
10928 South Lawndale
Chicago, IL 60655
Email: carterb@apco911.org

Dear Mr. Carter:

Region 13 (Illinois) is in receipt of your proposed 700 MHz Regional Plan with the revised frequency sort, submitted to this Committee on August 25, 2008. Region 13 met on dd/mm/yy and formally approved Region 54's Plan.

This letter serves as the official, written concurrence of Region 13 to your proposed 700 MHz Regional Plan.

Sincerely,



Gary Cochran, Chairperson
Public Safety Regional Planning Committee
Region 13
Illinois State Police
PO Box 19461, Room 401
Springfield, IL 62792-9461

Inter-Regional Coordinations Procedures and Procedures for Resolution of Disputes That may arise under FCC Approved Plans

I. Introduction

This is a mutually agreed upon Inter-Regional Coordination Procedures Agreement(Agreement) by and between the following 700 MHz Regional Planning Committees:

Region 13

Region 54

II. Inter-Regional Coordination Agreement

The following is the specific procedures for inter-Regional coordination which has been agreed upon by Region 13 and Region 54 which will be used by the Regions to coordinate with adjacent Regional Planning Committees.

- A. An application filing window is opened or the Region announces that it is prepared to begin accepting applications on a first-come first-served basis.
- B. Applications by eligible entities (as defined within the Plan) are accepted.
- C. An application filing window is closed after an appropriate time interval.
- D. Intra-Regional review and coordination takes place, including a technical review, resulting in assignment of channels.
- E. After intra-Regional review, a copy of the frequency specific applications requiring adjacent Region approval, including a definition statement of proposed service area, shall then be forwarded to the adjacent Region(s) for review. If an applicant's proposed service area extends into an adjacent Public Safety Region(s), the affected Region must approve the application. Service area shall normally be defined as the area included within the geographical boundary of the applicant, plus three miles. Other definitions of service area shall be justified with an accompanying Memorandum of Understanding (MOU) or other applicable documentation between agencies, i.e., mutual aid agreements. This information will be sent to the Chairperson of the adjacent Region(s) using the CAPRAD database.

- F. The adjacent Region shall reviews the application. If the application is approved, a letter of concurrence will be sent, via the CAPRAD database, to the initiating Region Chairperson within thirty (30) calendar days.

Dispute Resolution


- (1) If an adjacent Region cannot approve the request, the adjacent Region shall document the reasons for partial or non-concurrence, and respond within ten (10) calendar days via email. If the applying Region cannot modify the application to satisfy the objectives of the adjacent Region then, a working group comprised of representatives of the two regions shall be convened within thirty (30) calendar days to attempt to resolve the dispute. The working group shall then report its findings within thirty (30) calendar days to the Regional Chairpersons via email (CAPRAD database). Findings may include, but are not limited to:
 - a. Unconditional concurrence;
 - b. Conditional concurrence contingent upon modification of Applicant's technical parameters; or
 - c. Partial or total denial of proposed frequencies due to inability to provide co-channel/adjacent channel interference-free protection to existing license(s) with the adjacent Region.
 - (2) If the Inter-Regional Working Group cannot resolve the dispute, then the matter shall be forwarded for evaluation to the National Plan Oversight Committee (NPOC), of the National Public Safety Telecommunications Council. Each region involved in the dispute shall include a detailed explanation of its position, including engineering studies and any other technical information deemed relevant. The NPOC will, within thirty (30) calendar days, reports its recommendation(s) to the Regional Chairpersons via the CAPRAD database. The NPOC's decision may support either of the disputing Regions or it may develop a proposal that it deems mutually advantageous to each disputing Region.
- G. Where adjacent Region concurrence has been secured, and the channel assignments would result in no change to the Region's currently Commission approved channel assignment matrix, the initiating Region shall forward the application to the appropriate frequency coordinator (previously selected by the applicant) for processing and filing with the Commission.


- H. Where the adjacent Region concurrence has been secured, and the channel assignments would result in a change to the Region's currently Commission approved channel assignment matrix; the resulting Region shall file with the Commission a *Petition to Amend* their current Regional plan's frequency matrix reflecting the new channel assignments. A copy of the *Petition* shall be sent to the adjacent Regional Chairperson(s).
- I. Upon Commission issuance of an *Order* adopting the amended channel assignment matrix, the initiating Regional Chairperson will send a courtesy copy of the *Order* to the adjacent Regional Chairperson(s). The application shall then be forwarded to the appropriate frequency coordinator for processing and filing with the Commission.

III. Conclusion

In agreement hereto, Region 13 and Region 54 do hereunto set their signatures the day and year first above written.

Respectfully,


Gary Cochran, Region 13 Chairperson


William Carter, Region 54 Chairperson

Date: 1-23-07

Michigan Public Safety
FREQUENCY ADVISORY COMMITTEE
(MPSFAC) REGION 21

DIRECT ALL CORRESPONDENCE TO:

Keith Bradshaw
21930 Dunham
Mt. Clemons, MI 48043
(586) 469-6433

REPRESENTING:

Associated Public-Safety Communications Officers, Inc.
Michigan Association of Chiefs of Police
Michigan Sheriff's Association
Michigan Municipal League
State of Michigan

November 5, 2008

Mr. William J. Carter, Chairperson
Public Safety Regional Planning Committee – Region 54
10928 South Lawndale
Chicago, IL 60655

Reference: Region 54 Plan Concurrence

Dear Mr. Carter:

Region 21 700 MHz coordination activities have been delegated to the Michigan Public Safety Frequency Advisory Committee (MPSFAC) through the Federal Communication Commission's formal approval of the Region 21 700 MHz Plan.

Pursuant to their mandated responsibilities, members of MPSFAC formally voted on November 3, 2008 to approve the Region 54 700 MHz Plan. Through their vote, approval was given to the document submitted to our committee by Region 54 on August 25, 2008 (with a revised frequency sort). This letter serves as Region 21's official notification of its approval the Region 54 Plan.

Enclosed within this communication is a separate, document signed at the direction of members of MPSFAC per a separate vote conducted on November 3, 2008. That document is Region 54's "Inter-Regional Coordinations Procedures and Procedures for Resolution of Disputes."

Members of Region 21 recognize and applaud the effort and leadership members of Region 54 have demonstrated in the creation of their plan. Congratulations on a job well done. Thank you too for being such great neighbors and for the fine professional conduct your membership has exhibited in past interactions between our organizations. We look forward to mutually protecting the populations of our geographic areas with the highest caliber of cooperation and the best administrative conduct possible.

On behalf of all members of Region 21 ...

Best regards,

Joseph M. Turner, Chairman
2719 State St.
Saginaw, MI 48602
989 793-7373
jturner@michiganpropertytax.com

Inter-Regional Coordinations Procedures and Procedures for Resolution of Disputes That may arise under FCC Approved Plans

I. Introduction

This is a mutually agreed upon Inter-Regional Coordination Procedures Agreement(Agreement) by and between the following 700 MHz Regional Planning Committees:

Region 21

Region 54

II. Inter-Regional Coordination Agreement

The following is the specific procedures for inter-Regional coordination which has been agreed upon by Region 21 and Region 54 which will be used by the Regions to coordinate with adjacent Regional Planning Committees.

- A. An application filing window is opened or the Region announces that it is prepared to begin accepting applications on a first-come first-served basis.
- B. Applications by eligible entities (as defined within the Plan) are accepted.
- C. An application filing window is closed after an appropriate time interval.
- D. Intra-Regional review and coordination takes place, including a technical review, resulting in assignment of channels.
- E. After intra-Regional review, a copy of the frequency specific applications requiring adjacent Region approval, including a definition statement of proposed service area, shall then be forwarded to the adjacent Region(s) for review. If an applicant's proposed service area extends into an adjacent Public Safety Region(s), the affected Region must approve the application. Service area shall normally be defined as the area included within the geographical boundary of the applicant, plus three miles. Other definitions of service area shall be justified with an accompanying Memorandum of Understanding (MOU) or other applicable documentation between agencies, i.e., mutual aid agreements. This information will be sent to the Chairperson of the adjacent Region(s) using the CAPRAD database.

- F. The adjacent Region shall reviews the application. If the application is approved, a letter of concurrence will be sent, via the CAPRAD database, to the initiating Region Chairperson within thirty (30) calendar days.

Dispute Resolution

- (1) If an adjacent Region cannot approve the request, the adjacent Region shall document the reasons for partial or non-concurrence, and respond within ten (10) calendar days via email. If the applying Region cannot modify the application to satisfy the objectives of the adjacent Region then, a working group comprised of representatives of the two regions shall be convened within thirty (30) calendar days to attempt to resolve the dispute. The working group shall then report its findings within thirty (30) calendar days to the Regional Chairpersons via email (CAPRAD database). Findings may include, but are not limited to:
 - a. Unconditional concurrence;
 - b. Conditional concurrence contingent upon modification of Applicant's technical parameters; or
 - c. Partial or total denial of proposed frequencies due to inability to provide co-channel/adjacent channel interference-free protection to existing license(s) with the adjacent Region.
 - (2) If the Inter-Regional Working Group cannot resolve the dispute, then the matter shall be forwarded for evaluation to the National Plan Oversight Committee (NPOC), of the National Public Safety Telecommunications Council. Each region involved in the dispute shall include a detailed explanation of its position, including engineering studies and any other technical information deemed relevant. The NPOC will, within thirty (30) calendar days, reports its recommendation(s) to the Regional Chairpersons via the CAPRAD database. The NPOC's decision may support either of the disputing Regions or it may develop a proposal that it deems mutually advantageous to each disputing Region.
- G. Where adjacent Region concurrence has been secured, and the channel assignments would result in no change to the Region's currently Commission approved channel assignment matrix, the initiating Region shall forward the application to the appropriate frequency coordinator (previously selected by the applicant) for processing and filing with the Commission.

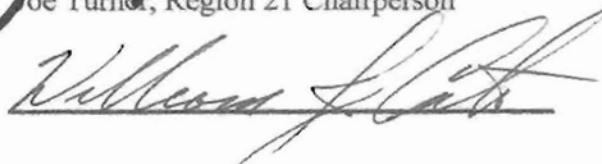
- H. Where the adjacent Region concurrence has been secured, and the channel assignments would result in a change to the Region's currently Commission approved channel assignment matrix; the resulting Region shall file with the Commission a *Petition to Amend* their current Regional plan's frequency matrix reflecting the new channel assignments. A copy of the *Petition* shall be sent to the adjacent Regional Chairperson(s).
- I. Upon Commission issuance of an *Order* adopting the amended channel assignment matrix, the initiating Regional Chairperson will send a courtesy copy of the *Order* to the adjacent Regional Chairperson(s). The application shall then be forwarded to the appropriate frequency coordinator for processing and filing with the Commission.

III. Conclusion

In agreement hereto, Region 21 and Region 54 do hereunto set their signatures the day and year first above written.

Respectfully,


Joe Turner, Region 21 Chairperson



William Carter, Region 54 Chairperson

Date: October 24, 2008



November 6, 2008

Mr. William J Carter Chairperson
Public Safety Regional Planning Committee
Region 54
10928 South Lawndale
Chicago IL 60655
carterb@apco911.org

Dear Mr. Carter:

Region 45 (Wisconsin) is in receipt of your proposed 700 MHz Regional Plan with the revised frequency sort, submitted to this Committee on August 25, 2008. Region 45 met on October 29, 2008 and formally approved Region 54's Plan.

This letter serves as the official, written concurrence of Region 45 to your proposed 700 MHz Regional Plan.

Sincerely,

DAVID E. KIRK
CHIEF OF POLICE

RUSSELL SCHREINER, CHAIRMAN
PUBLIC SAFETY REGIONAL PLANNING
COMMITTEE
REGION 45
COMMUNICATIONS ENGINEER
SHEBOYGAN POLICE DEPART
828 CENTER AVENUE
SHEBOYGAN WI 53081

DEPARTMENT
OF POLICE

CITY HALL
SUITE 101
828 CENTER AVE.
SHEBOYGAN, WI
53081-4499

920 39-3333
F. 459-0205
www.sheboyganpolice.com

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Inter-Regional Coordinations Procedures and Procedures for Resolution of Disputes That may arise under FCC Approved Plans

I. Introduction

This is a mutually agreed upon Inter-Regional Coordination Procedures Agreement (Agreement) by and between the following 700 MHz Regional Planning Committees:

Region 45

Region 54

II. Inter-Regional Coordination Agreement

The following is the specific procedures for inter-Regional coordination which has been agreed upon by Region 45 and Region 54 which will be used by the Regions to coordinate with adjacent Regional Planning Committees.

- A. An application filing window is opened or the Region announces that it is prepared to begin accepting applications on a first-come first-served basis.
- B. Applications by eligible entities (as defined within the Plan) are accepted.
- C. An application filing window is closed after an appropriate time interval.
- D. Intra-Regional review and coordination takes place, including a technical review, resulting in assignment of channels.
- E. After intra-Regional review, a copy of the frequency specific applications requiring adjacent Region approval, including a definition statement of proposed service area, shall then be forwarded to the adjacent Region(s) for review. If an applicant's proposed service area extends into an adjacent Public Safety Region(s), the affected Region must approve the application. Service area shall normally be defined as the area included within the geographical boundary of the applicant, plus three miles. Other definitions of service area shall be justified with an accompanying Memorandum of Understanding (MOU) or other applicable documentation between agencies, i.e., mutual aid agreements. This information will be sent to the Chairperson of the adjacent Region(s) using the CAPRAD database.

- F. The adjacent Region shall review the application. If the application is approved, a letter of concurrence will be sent, via the CAPRAD database, to the initiating Region Chairperson within thirty (30) calendar days.

Dispute Resolution

- (1) If an adjacent Region cannot approve the request, the adjacent Region shall document the reasons for partial or non-concurrence, and respond within ten (10) calendar days via email. If the applying Region cannot modify the application to satisfy the objectives of the adjacent Region then, a working group comprised of representatives of the two regions shall be convened within thirty (30) calendar days to attempt to resolve the dispute. The working group shall then report its findings within thirty (30) calendar days to the Regional Chairpersons via email (CAPRAD database). Findings may include, but are not limited to:
 - a. Unconditional concurrence;
 - b. Conditional concurrence contingent upon modification of Applicant's technical parameters; or
 - c. Partial or total denial of proposed frequencies due to inability to provide co-channel/adjacent channel interference-free protection to existing license(s) with the adjacent Region.
 - (2) If the Inter-Regional Working Group cannot resolve the dispute, then the matter shall be forwarded for evaluation to the National Plan Oversight Committee (NPOC), of the National Public Safety Telecommunications Council. Each region involved in the dispute shall include a detailed explanation of its position, including engineering studies and any other technical information deemed relevant. The NPOC will, within thirty (30) calendar days, reports its recommendation(s) to the Regional Chairpersons via the CAPRAD database. The NPOC's decision may support either of the disputing Regions or it may develop a proposal that it deems mutually advantageous to each disputing Region.
- G. Where adjacent Region concurrence has been secured, and the channel assignments would result in no change to the Region's currently Commission approved channel assignment matrix, the initiating Region shall forward the application to the appropriate frequency coordinator (previously selected by the applicant) for processing and filing with the Commission.

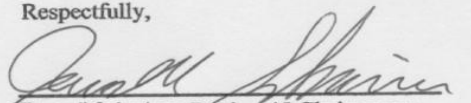
H. Where the adjacent Region concurrence has been secured, and the channel assignments would result in a change to the Region's currently Commission approved channel assignment matrix; the resulting Region shall file with the Commission a *Petition to Amend* their current Regional plan's frequency matrix reflecting the new channel assignments. A copy of the *Petition* shall be sent to the adjacent Regional Chairperson(s).

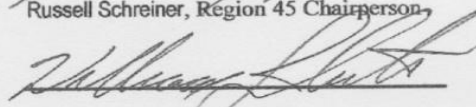
I. Upon Commission issuance of an *Order* adopting the amended channel assignment matrix, the initiating Regional Chairperson will send a courtesy copy of the *Order* to the adjacent Regional Chairperson(s). The application shall then be forwarded to the appropriate frequency coordinator for processing and filing with the Commission.

III. Conclusion

In agreement hereto, Region 45 and Region 54 do hereunto set their signatures the day and year first above written.

Respectfully,


Russell Schreiner, Region 45 Chairperson


William Carter, Region 54 Chairperson

Date: October 24, 2008

24 APPENDIX K – REGION 54 SOUTHERN LAKE MICHIGAN COUNTY SPECTRUM ALLOCATION

County General Use & State Channel Pool Allotments

County	GU Chan	Center Freq (MHz)	State Chan	Center Freq (MHz)
IL-Boone County	369-372 461-464 537-540 589-592 865-868	771.31250 771.88750 772.36250 772.68750 774.41250	689-692	773.31250
IL-Cook County	41-44 81-84 129-132 201-204 249-252 321-324 361-364 405-408 477-480 541-544 581-584 621-624 661-664 701-704 741-744 781-784 821-824 861-864 901-904 945-948	769.26250 769.51250 769.81250 770.26250 770.56250 771.01250 771.26250 771.53750 771.98750 772.38750 772.63750 772.88750 773.13750 773.38750 773.63750 773.88750 774.13750 774.38750 774.63750 774.91250	65-68 105-108 153-156 233-236 273-276 313-316 645-648 685-688 725-728 765-768 805-808 845-848 885-888 925-928	769.41250 769.66250 769.96250 770.46250 770.71250 770.96250 773.03750 773.28750 773.53750 773.78750 774.03750 774.28750 774.53750 774.78750
IL-De Kalb County	133-136 209-212 401-404 453-456 497-500 549-552 601-604 705-708 745-748	769.83750 770.31250 771.51250 771.83750 772.11250 772.43750 772.76250 773.41250 773.66250	309-312 809-812 929-932	770.93750 774.06250 774.81250
IL-Du Page County	53-56 121-124 169-172 241-244 289-292 337-340 389-392 437-440 489-492 553-556	769.33750 769.76250 770.06250 770.51250 770.81250 771.11250 771.43750 771.73750 772.06250 772.46250	25-28 73-76 193-196 773-776	769.16250 769.46250 770.21250 773.83750

	629-632 669-672 717-720 757-760 829-832 869-872 917-920	772.93750 773.18750 773.48750 773.73750 774.18750 774.43750 774.73750		
IL-Grundy County	137-140 253-256 385-388 517-520 557-560 605-608 709-712	769.86250 770.58750 771.41250 772.23750 772.48750 772.78750 773.43750	145-148 265-268	769.91250 770.66250
IL-Kane County	161-164 217-220 257-260 353-356 413-416 469-472 513-516 565-568 613-616 797-800 909-912	770.01250 770.36250 770.61250 771.21250 771.58750 771.93750 772.21250 772.53750 772.83750 773.98750 774.68750	33-36 113-116 653-656 733-736	769.21250 769.71250 773.08750 773.58750
IL-Kankakee County	125-128 205-208 245-248 357-360 401-404 453-456 493-496 577-580 665-668 865-868 905-908	769.78750 770.28750 770.53750 771.23750 771.51250 771.83750 772.08750 772.61250 773.16250 774.41250 774.66250	225-228 649-652 809-812 893-896	770.41250 773.06250 774.06250 774.58750
IL-Kendall County	45-48 85-88 377-380 429-432 505-508 941-944	769.28750 769.53750 771.36250 771.68750 772.16250 774.88750	229-232 849-852	770.43750 774.31250
IL-Lake County	17-20 57-60 97-100 137-140 293-296 341-344 393-396 433-436 493-496 533-536 593-596	769.11250 769.36250 769.61250 769.86250 770.83750 771.13750 771.46250 771.71250 772.08750 772.33750 772.71250	225-228 265-268 813-816 893-896	770.41250 770.66250 774.08750 774.58750

	633-636 673-676 713-716 833-836 873-876	772.96250 773.21250 773.46250 774.21250 774.46250		
IL-McHenry County	49-52 89-92 173-176 285-288 333-336 385-388 441-444 521-524 573-576	769.31250 769.56250 770.08750 770.78750 771.08750 771.41250 771.76250 772.26250 772.58750	145-148 189-192 853-856	769.91250 770.18750 774.33750
IL-Will County	13-16 93-96 177-180 281-284 329-332 369-372 421-424 461-464 597-600 637-640 677-680 749-752 789-792 837-840 877-880	769.08750 769.58750 770.11250 770.76250 771.06250 771.31250 771.63750 771.88750 772.73750 772.98750 773.23750 773.68750 773.93750 774.23750 774.48750	185-188 305-308 693-696 933-936	770.16250 770.91250 773.33750 774.83750
IL-Winnebago County	45-48 85-88 125-128 245-248 325-328 381-384 437-440 517-520 577-580 637-640 713-716 793-796 833-836 873-876 941-944	769.28750 769.53750 769.78750 770.53750 771.03750 771.38750 771.73750 772.23750 772.61250 772.98750 773.46250 773.96250 774.21250 774.46250 774.88750	73-76 149-152 193-196 265-268 773-776 849-852	769.46250 769.93750 770.21250 770.66250 773.83750 774.31250
IN-Elkhart County	49-52 89-92 173-176 245-248 285-288 345-348 385-388 429-432 473-476 529-532	769.31250 769.56250 770.08750 770.53750 770.78750 771.16250 771.41250 771.68750 771.96250 772.31250	193-196 273-276 313-316 773-776 853-856 893-896	770.21250 770.71250 770.96250 773.83750 774.33750 774.58750

	569-572 629-632 705-708 753-756 797-800 837-840 913-916	772.56250 772.93750 773.41250 773.71250 773.98750 774.23750 774.71250		
IN-Jasper County	57-60 241-244 377-380 489-492 545-548 601-604 673-676 745-748	769.36250 770.51250 771.36250 772.06250 772.41250 772.76250 773.21250 773.66250	189-192 813-816	770.18750 774.08750
IN-La Porte County	97-100 169-172 217-220 293-296 349-352 397-400 465-468 505-508 565-568 713-716 757-760 833-836	769.61250 770.06250 770.36250 770.83750 771.18750 771.48750 771.91250 772.16250 772.53750 773.46250 773.73750 774.21250	33-36 113-116 309-312 653-656	769.21250 769.71250 770.93750 773.08750
IN-Lake County	49-52 165-168 213-216 257-260 297-300 345-348 385-388 429-432 469-472 525-528 569-572 613-616 709-712 797-800 913-916	769.31250 770.03750 770.33750 770.61250 770.86250 771.16250 771.41250 771.68750 771.93750 772.28750 772.56250 772.83750 773.43750 773.98750 774.71250	29-32 145-148 733-736 853-856	769.18750 769.91250 773.58750 774.33750
IN-Marshall County	321-324 361-364 405-408 453-456 557-560 677-680 741-744	771.01250 771.26250 771.53750 771.83750 772.48750 773.23750 773.63750	693-696 733-736 933-936	773.33750 773.58750 774.83750
IN-Newton County	173-176 333-336 393-396 513-516	770.08750 771.08750 771.46250 772.21250	69-72 109-112	769.43750 769.68750

	593-596	772.71250		
IN-Porter County	17-20	769.11250		
	89-92	769.56250		
	133-136	769.83750		
	325-328	771.03750		
	365-368	771.28750	269-272	770.68750
	409-412	771.56250	689-692	773.31250
	449-452	771.81250	769-772	773.81250
	497-500	772.11250	889-892	774.56250
	585-588	772.66250	929-932	774.81250
	625-628	772.91250		
	785-788	773.91250		
	825-828	774.16250		
	941-944	774.88750		
IN-Pulaski County	437-440	771.73750		
	477-480	771.98750		
	533-536	772.33750	233-236	770.46250
	661-664	773.13750	845-848	774.28750
	901-904	774.63750		
IN-St. Joseph County	41-44	769.26250		
	81-84	769.51250		
	121-124	769.76250		
	161-164	770.01250		
	205-208	770.28750		
	253-256	770.58750	105-108	769.66250
	329-332	771.06250	265-268	770.66250
	373-376	771.33750	645-648	773.03750
	445-448	771.78750	685-688	773.28750
	485-488	772.03750	725-728	773.53750
	541-544	772.38750	765-768	773.78750
	605-608	772.78750	805-808	774.03750
	665-668	773.16250	885-888	774.53750
	781-784	773.88750	925-928	774.78750
	821-824	774.13750		
	861-864	774.38750		
	905-908	774.66250		
	945-948	774.91250		
IN-Starke County	425-428	771.66250		
	517-520	772.23750		
	573-576	772.58750	73-76	769.46250
	617-620	772.86250		
	869-872	774.43750		
WI-Dane County	17-20	769.11250		
	57-60	769.36250		
	97-100	769.61250	113-116	769.71250
	137-140	769.86250	313-316	770.96250
	209-212	770.31250	653-656	773.08750
	281-284	770.76250	693-696	773.33750
	329-332	771.06250	765-768	773.78750
	377-380	771.36250	805-808	774.03750
	421-424	771.63750	845-848	774.28750
	465-468	771.91250	925-928	774.78750
	505-508	772.16250		

	553-556 609-612 661-664 705-708 745-748 785-788 829-832 869-872	772.46250 772.81250 773.13750 773.41250 773.66250 773.91250 774.18750 774.43750		
WI-Dodge County	121-124 161-164 249-252 385-388 437-440 477-480 537-540 901-904 941-944	769.76250 770.01250 770.56250 771.41250 771.73750 771.98750 772.36250 774.63750 774.88750	145-148 193-196 893-896	769.91250 770.21250 774.58750
WI-Jefferson County	41-44 81-84 337-340 401-404 525-528 581-584 621-624	769.26250 769.51250 771.11250 771.51250 772.28750 772.63750 772.88750	153-156 233-236	769.96250 770.46250
WI-Kenosha County	213-216 349-352 417-420 465-468 509-512 557-560 617-620 665-668 749-752 789-792	770.33750 771.18750 771.61250 771.91250 772.18750 772.48750 772.86250 773.16250 773.68750 773.93750	109-112 649-652 729-732	769.68750 773.06250 773.56250
WI-Milwaukee County	45-48 85-88 125-128 169-172 209-212 281-284 353-356 397-400 469-472 541-544 613-616 661-664 705-708 745-748 785-788 829-832 869-872 945-948	769.28750 769.53750 769.78750 770.06250 770.31250 770.76250 771.21250 771.48750 771.93750 772.38750 772.83750 773.13750 773.41250 773.66250 773.91250 774.18750 774.43750 774.91250	33-36 73-76 149-152 313-316 653-656 725-728 765-768 805-808 845-848 885-888 925-928	769.21250 769.46250 769.93750 770.96250 773.08750 773.53750 773.78750 774.03750 774.28750 774.53750 774.78750
WI-Ozaukee County	177-180	770.11250	305-308	770.91250

	333-336 389-392 433-436 493-496 533-536 577-580 629-632 669-672	771.08750 771.43750 771.71250 772.08750 772.33750 772.61250 772.93750 773.18750	813-816	774.08750
WI-Racine County	13-16 241-244 297-300 365-368 449-452 529-532 585-588 625-628 837-840 877-880	769.08750 770.51250 770.86250 771.28750 771.81250 772.31250 772.66250 772.91250 774.23750 774.48750	229-232 269-272 693-696 933-936	770.43750 770.68750 773.33750 774.83750
WI-Rock County	165-168 253-256 345-348 409-412 473-476 561-564 629-632 669-672 753-756 917-920	770.03750 770.58750 771.16250 771.56250 771.96250 772.51250 772.93750 773.18750 773.71250 774.73750	29-32 305-308 889-892	769.18750 770.91250 774.56250
WI-Walworth County	205-208 357-360 425-428 485-488 545-548 825-828 905-908	770.28750 771.23750 771.66250 772.03750 772.41250 774.16250 774.66250	69-72 769-772	769.43750 773.81250
WI-Washington County	201-204 293-296 361-364 445-448 501-504 549-552 593-596 637-640 821-824	770.26250 770.83750 771.26250 771.78750 772.13750 772.43750 772.71250 772.98750 774.13750	65-68 773-776 853-856	769.41250 773.83750 774.33750
WI-Waukesha County	53-56 93-96 133-136 217-220 257-260 321-324 373-376 413-416 457-460	769.33750 769.58750 769.83750 770.36250 770.61250 771.01250 771.33750 771.58750 771.86250	25-28 105-108 185-188 645-648 685-688 733-736	769.16250 769.66250 770.16250 773.03750 773.28750 773.58750

	513-516	772.21250		
	565-568	772.53750		
	605-608	772.78750		
	677-680	773.23750		
	717-720	773.48750		
	757-760	773.73750		
	797-800	773.98750		
	861-864	774.38750		
	913-916	774.71250		

**Region 54 - Chicago Metropolitan
Channel Allotments by Class**

- - - - - Illinois - - - - -

General Use

County Notation	Band	FCC Channel Number	Base Frequency	Mobile Frequency
Boone	Voice 25KHz	369-372	771.312500	801.312500
	Voice 25KHz	461-464	771.887500	801.887500
	Voice 25KHz	537-540	772.362500	802.362500
	Voice 25KHz	589-592	772.687500	802.687500
	Voice 25KHz	865-868	774.412500	804.412500
Cook	Voice 25KHz	41-44	769.262500	799.262500
	Voice 25KHz	81-84	769.512500	799.512500
	Voice 25KHz	129-132	769.812500	799.812500
	Voice 25KHz	201-204	770.262500	800.262500
	Voice 25KHz	249-252	770.562500	800.562500
	Voice 25KHz	321-324	771.012500	801.012500
	Voice 25KHz	361-364	771.262500	801.262500
	Voice 25KHz	405-408	771.537500	801.537500
	Voice 25KHz	477-480	771.987500	801.987500
	Voice 25KHz	541-544	772.387500	802.387500
	Voice 25KHz	581-584	772.637500	802.637500
	Voice 25KHz	621-624	772.887500	802.887500
	Voice 25KHz	661-664	773.137500	803.137500
	Voice 25KHz	701-704	773.387500	803.387500
	Voice 25KHz	741-744	773.637500	803.637500
	Voice 25KHz	781-784	773.887500	803.887500
	Voice 25KHz	821-824	774.137500	804.137500
	Voice 25KHz	861-864	774.387500	804.387500
	Voice 25KHz	901-904	774.637500	804.637500
	Voice 25KHz	945-948	774.912500	804.912500
De Kalb	Voice 25KHz	133-136	769.837500	799.837500
	Voice 25KHz	209-212	770.312500	800.312500
	Voice 25KHz	401-404	771.512500	801.512500
	Voice 25KHz	453-456	771.837500	801.837500
	Voice 25KHz	497-500	772.112500	802.112500
	Voice 25KHz	549-552	772.437500	802.437500
	Voice 25KHz	601-604	772.762500	802.762500
	Voice 25KHz	705-708	773.412500	803.412500
	Voice 25KHz	745-748	773.662500	803.662500
Du Page	Voice 25KHz	53-56	769.337500	799.337500
	Voice 25KHz	121-124	769.762500	799.762500
	Voice 25KHz	169-172	770.062500	800.062500
	Voice 25KHz	241-244	770.512500	800.512500
	Voice 25KHz	289-292	770.812500	800.812500
	Voice 25KHz	337-340	771.112500	801.112500
	Voice 25KHz	389-392	771.437500	801.437500

	Voice 25KHz	437-440	771.737500	801.737500
	Voice 25KHz	489-492	772.062500	802.062500
	Voice 25KHz	553-556	772.462500	802.462500
	Voice 25KHz	629-632	772.937500	802.937500
	Voice 25KHz	669-672	773.187500	803.187500
	Voice 25KHz	717-720	773.487500	803.487500
	Voice 25KHz	757-760	773.737500	803.737500
	Voice 25KHz	829-832	774.187500	804.187500
	Voice 25KHz	869-872	774.437500	804.437500
	Voice 25KHz	917-920	774.737500	804.737500
Grundy	Voice 25KHz	137-140	769.862500	799.862500
	Voice 25KHz	253-256	770.587500	800.587500
	Voice 25KHz	385-388	771.412500	801.412500
	Voice 25KHz	517-520	772.237500	802.237500
	Voice 25KHz	557-560	772.487500	802.487500
	Voice 25KHz	605-608	772.787500	802.787500
	Voice 25KHz	709-712	773.437500	803.437500
Kane	Voice 25KHz	161-164	770.012500	800.012500
	Voice 25KHz	217-220	770.362500	800.362500
	Voice 25KHz	257-260	770.612500	800.612500
	Voice 25KHz	353-356	771.212500	801.212500
	Voice 25KHz	413-416	771.587500	801.587500
	Voice 25KHz	469-472	771.937500	801.937500
	Voice 25KHz	513-516	772.212500	802.212500
	Voice 25KHz	565-568	772.537500	802.537500
	Voice 25KHz	613-616	772.837500	802.837500
	Voice 25KHz	797-800	773.987500	803.987500
	Voice 25KHz	909-912	774.687500	804.687500
Kankakee	Voice 25KHz	125-128	769.787500	799.787500
	Voice 25KHz	205-208	770.287500	800.287500
	Voice 25KHz	245-248	770.537500	800.537500
	Voice 25KHz	357-360	771.237500	801.237500
	Voice 25KHz	401-404	771.512500	801.512500
	Voice 25KHz	453-456	771.837500	801.837500
	Voice 25KHz	493-496	772.087500	802.087500
	Voice 25KHz	577-580	772.612500	802.612500
	Voice 25KHz	665-668	773.162500	803.162500
	Voice 25KHz	865-868	774.412500	804.412500
	Voice 25KHz	905-908	774.662500	804.662500
Kendall	Voice 25KHz	45-48	769.287500	799.287500
	Voice 25KHz	85-88	769.537500	799.537500
	Voice 25KHz	377-380	771.362500	801.362500
	Voice 25KHz	429-432	771.687500	801.687500
	Voice 25KHz	505-508	772.162500	802.162500
	Voice 25KHz	941-944	774.887500	804.887500
Lake	Voice 25KHz	17-20	769.112500	799.112500
	Voice 25KHz	57-60	769.362500	799.362500
	Voice 25KHz	97-100	769.612500	799.612500
	Voice 25KHz	137-140	769.862500	799.862500
	Voice 25KHz	293-296	770.837500	800.837500
	Voice 25KHz	341-344	771.137500	801.137500
	Voice 25KHz	393-396	771.462500	801.462500

	Voice	25KHz	433-436	771.712500	801.712500
	Voice	25KHz	493-496	772.087500	802.087500
	Voice	25KHz	533-536	772.337500	802.337500
	Voice	25KHz	593-596	772.712500	802.712500
	Voice	25KHz	633-636	772.962500	802.962500
	Voice	25KHz	673-676	773.212500	803.212500
	Voice	25KHz	713-716	773.462500	803.462500
	Voice	25KHz	833-836	774.212500	804.212500
	Voice	25KHz	873-876	774.462500	804.462500
McHenry	Voice	25KHz	49-52	769.312500	799.312500
	Voice	25KHz	89-92	769.562500	799.562500
	Voice	25KHz	173-176	770.087500	800.087500
	Voice	25KHz	285-288	770.787500	800.787500
	Voice	25KHz	333-336	771.087500	801.087500
	Voice	25KHz	385-388	771.412500	801.412500
	Voice	25KHz	441-444	771.762500	801.762500
	Voice	25KHz	521-524	772.262500	802.262500
	Voice	25KHz	573-576	772.587500	802.587500
Will	Voice	25KHz	13-16	769.087500	799.087500
	Voice	25KHz	93-96	769.587500	799.587500
	Voice	25KHz	177-180	770.112500	800.112500
	Voice	25KHz	281-284	770.762500	800.762500
	Voice	25KHz	329-332	771.062500	801.062500
	Voice	25KHz	369-372	771.312500	801.312500
	Voice	25KHz	421-424	771.637500	801.637500
	Voice	25KHz	461-464	771.887500	801.887500
	Voice	25KHz	597-600	772.737500	802.737500
	Voice	25KHz	637-640	772.987500	802.987500
	Voice	25KHz	677-680	773.237500	803.237500
	Voice	25KHz	749-752	773.687500	803.687500
	Voice	25KHz	789-792	773.937500	803.937500
	Voice	25KHz	837-840	774.237500	804.237500
	Voice	25KHz	877-880	774.487500	804.487500
Winnebago	Voice	25KHz	45-48	769.287500	799.287500
	Voice	25KHz	85-88	769.537500	799.537500
	Voice	25KHz	125-128	769.787500	799.787500
	Voice	25KHz	245-248	770.537500	800.537500
	Voice	25KHz	325-328	771.037500	801.037500
	Voice	25KHz	381-384	771.387500	801.387500
	Voice	25KHz	437-440	771.737500	801.737500
	Voice	25KHz	517-520	772.237500	802.237500
	Voice	25KHz	577-580	772.612500	802.612500
	Voice	25KHz	637-640	772.987500	802.987500
	Voice	25KHz	713-716	773.462500	803.462500
	Voice	25KHz	793-796	773.962500	803.962500
	Voice	25KHz	833-836	774.212500	804.212500
	Voice	25KHz	873-876	774.462500	804.462500
	Voice	25KHz	941-944	774.887500	804.887500

State License

FCC Channel	Base	Mobile
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County Notation	Band	Number	Frequency	Frequency
Boone	Voice 25KHz	689-692	773.312500	803.312500
Cook	Voice 25KHz	65-68	769.412500	799.412500
	Voice 25KHz	105-108	769.662500	799.662500
	Voice 25KHz	153-156	769.962500	799.962500
	Voice 25KHz	233-236	770.462500	800.462500
	Voice 25KHz	273-276	770.712500	800.712500
	Voice 25KHz	313-316	770.962500	800.962500
	Voice 25KHz	645-648	773.037500	803.037500
	Voice 25KHz	685-688	773.287500	803.287500
	Voice 25KHz	725-728	773.537500	803.537500
	Voice 25KHz	765-768	773.787500	803.787500
	Voice 25KHz	805-808	774.037500	804.037500
	Voice 25KHz	845-848	774.287500	804.287500
	Voice 25KHz	885-888	774.537500	804.537500
	Voice 25KHz	925-928	774.787500	804.787500
De Kalb	Voice 25KHz	309-312	770.937500	800.937500
	Voice 25KHz	809-812	774.062500	804.062500
	Voice 25KHz	929-932	774.812500	804.812500
Du Page	Voice 25KHz	25-28	769.162500	799.162500
	Voice 25KHz	73-76	769.462500	799.462500
	Voice 25KHz	193-196	770.212500	800.212500
	Voice 25KHz	773-776	773.837500	803.837500
Grundy	Voice 25KHz	145-148	769.912500	799.912500
	Voice 25KHz	265-268	770.662500	800.662500
Kane	Voice 25KHz	33-36	769.212500	799.212500
	Voice 25KHz	113-116	769.712500	799.712500
	Voice 25KHz	653-656	773.087500	803.087500
	Voice 25KHz	733-736	773.587500	803.587500
Kankakee	Voice 25KHz	225-228	770.412500	800.412500
	Voice 25KHz	649-652	773.062500	803.062500
	Voice 25KHz	809-812	774.062500	804.062500
	Voice 25KHz	893-896	774.587500	804.587500
Kendall	Voice 25KHz	229-232	770.437500	800.437500
	Voice 25KHz	849-852	774.312500	804.312500
Lake	Voice 25KHz	225-228	770.412500	800.412500
	Voice 25KHz	265-268	770.662500	800.662500
	Voice 25KHz	813-816	774.087500	804.087500
	Voice 25KHz	893-896	774.587500	804.587500
McHenry	Voice 25KHz	145-148	769.912500	799.912500
	Voice 25KHz	189-192	770.187500	800.187500
	Voice 25KHz	853-856	774.337500	804.337500
Will	Voice 25KHz	185-188	770.162500	800.162500
	Voice 25KHz	305-308	770.912500	800.912500
	Voice 25KHz	693-696	773.337500	803.337500

	Voice 25KHz	933-936	774.837500	804.837500
Winnebago	Voice 25KHz	73-76	769.462500	799.462500
	Voice 25KHz	149-152	769.937500	799.937500
	Voice 25KHz	193-196	770.212500	800.212500
	Voice 25KHz	265-268	770.662500	800.662500
	Voice 25KHz	773-776	773.837500	803.837500
	Voice 25KHz	849-852	774.312500	804.312500

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General Use

County Notation	Band	FCC Channel Number	Base Frequency	Mobile Frequency
Elkhart	Voice 25KHz	49-52	769.312500	799.312500
	Voice 25KHz	89-92	769.562500	799.562500
	Voice 25KHz	173-176	770.087500	800.087500
	Voice 25KHz	245-248	770.537500	800.537500
	Voice 25KHz	285-288	770.787500	800.787500
	Voice 25KHz	345-348	771.162500	801.162500
	Voice 25KHz	385-388	771.412500	801.412500
	Voice 25KHz	429-432	771.687500	801.687500
	Voice 25KHz	473-476	771.962500	801.962500
	Voice 25KHz	529-532	772.312500	802.312500
	Voice 25KHz	569-572	772.562500	802.562500
	Voice 25KHz	629-632	772.937500	802.937500
	Voice 25KHz	705-708	773.412500	803.412500
	Voice 25KHz	753-756	773.712500	803.712500
	Voice 25KHz	797-800	773.987500	803.987500
	Voice 25KHz	837-840	774.237500	804.237500
	Voice 25KHz	913-916	774.712500	804.712500
Jasper	Voice 25KHz	57-60	769.362500	799.362500
	Voice 25KHz	241-244	770.512500	800.512500
	Voice 25KHz	377-380	771.362500	801.362500
	Voice 25KHz	489-492	772.062500	802.062500
	Voice 25KHz	545-548	772.412500	802.412500
	Voice 25KHz	601-604	772.762500	802.762500
	Voice 25KHz	673-676	773.212500	803.212500
	Voice 25KHz	745-748	773.662500	803.662500
La Porte	Voice 25KHz	97-100	769.612500	799.612500
	Voice 25KHz	169-172	770.062500	800.062500
	Voice 25KHz	217-220	770.362500	800.362500
	Voice 25KHz	293-296	770.837500	800.837500
	Voice 25KHz	349-352	771.187500	801.187500
	Voice 25KHz	397-400	771.487500	801.487500
	Voice 25KHz	465-468	771.912500	801.912500
	Voice 25KHz	505-508	772.162500	802.162500
	Voice 25KHz	565-568	772.537500	802.537500
	Voice 25KHz	713-716	773.462500	803.462500
	Voice 25KHz	757-760	773.737500	803.737500

	Voice 25KHz	833-836	774.212500	804.212500
Lake	Voice 25KHz	49-52	769.312500	799.312500
	Voice 25KHz	165-168	770.037500	800.037500
	Voice 25KHz	213-216	770.337500	800.337500
	Voice 25KHz	257-260	770.612500	800.612500
	Voice 25KHz	297-300	770.862500	800.862500
	Voice 25KHz	345-348	771.162500	801.162500
	Voice 25KHz	385-388	771.412500	801.412500
	Voice 25KHz	429-432	771.687500	801.687500
	Voice 25KHz	469-472	771.937500	801.937500
	Voice 25KHz	525-528	772.287500	802.287500
	Voice 25KHz	569-572	772.562500	802.562500
	Voice 25KHz	613-616	772.837500	802.837500
	Voice 25KHz	709-712	773.437500	803.437500
	Voice 25KHz	797-800	773.987500	803.987500
	Voice 25KHz	913-916	774.712500	804.712500
Marshall	Voice 25KHz	321-324	771.012500	801.012500
	Voice 25KHz	361-364	771.262500	801.262500
	Voice 25KHz	405-408	771.537500	801.537500
	Voice 25KHz	453-456	771.837500	801.837500
	Voice 25KHz	557-560	772.487500	802.487500
	Voice 25KHz	677-680	773.237500	803.237500
	Voice 25KHz	741-744	773.637500	803.637500
Newton	Voice 25KHz	173-176	770.087500	800.087500
	Voice 25KHz	333-336	771.087500	801.087500
	Voice 25KHz	393-396	771.462500	801.462500
	Voice 25KHz	513-516	772.212500	802.212500
	Voice 25KHz	593-596	772.712500	802.712500
Porter	Voice 25KHz	17-20	769.112500	799.112500
	Voice 25KHz	89-92	769.562500	799.562500
	Voice 25KHz	133-136	769.837500	799.837500
	Voice 25KHz	325-328	771.037500	801.037500
	Voice 25KHz	365-368	771.287500	801.287500
	Voice 25KHz	409-412	771.562500	801.562500
	Voice 25KHz	449-452	771.812500	801.812500
	Voice 25KHz	497-500	772.112500	802.112500
	Voice 25KHz	585-588	772.662500	802.662500
	Voice 25KHz	625-628	772.912500	802.912500
	Voice 25KHz	785-788	773.912500	803.912500
	Voice 25KHz	825-828	774.162500	804.162500
	Voice 25KHz	941-944	774.887500	804.887500
Pulaski	Voice 25KHz	437-440	771.737500	801.737500
	Voice 25KHz	477-480	771.987500	801.987500
	Voice 25KHz	533-536	772.337500	802.337500
	Voice 25KHz	661-664	773.137500	803.137500
	Voice 25KHz	901-904	774.637500	804.637500
St. Joseph	Voice 25KHz	41-44	769.262500	799.262500
	Voice 25KHz	81-84	769.512500	799.512500
	Voice 25KHz	121-124	769.762500	799.762500
	Voice 25KHz	161-164	770.012500	800.012500
	Voice 25KHz	205-208	770.287500	800.287500

	Voice	25KHz	253-256	770.587500	800.587500
	Voice	25KHz	329-332	771.062500	801.062500
	Voice	25KHz	373-376	771.337500	801.337500
	Voice	25KHz	445-448	771.787500	801.787500
	Voice	25KHz	485-488	772.037500	802.037500
	Voice	25KHz	541-544	772.387500	802.387500
	Voice	25KHz	605-608	772.787500	802.787500
	Voice	25KHz	665-668	773.162500	803.162500
	Voice	25KHz	781-784	773.887500	803.887500
	Voice	25KHz	821-824	774.137500	804.137500
	Voice	25KHz	861-864	774.387500	804.387500
	Voice	25KHz	905-908	774.662500	804.662500
	Voice	25KHz	945-948	774.912500	804.912500
Starke	Voice	25KHz	425-428	771.662500	801.662500
	Voice	25KHz	517-520	772.237500	802.237500
	Voice	25KHz	573-576	772.587500	802.587500
	Voice	25KHz	617-620	772.862500	802.862500
	Voice	25KHz	869-872	774.437500	804.437500

State License

County Notation	Band	FCC Channel Number	Base Frequency	Mobile Frequency
Elkhart	Voice	25KHz	193-196	770.212500
	Voice	25KHz	273-276	770.712500
	Voice	25KHz	313-316	770.962500
	Voice	25KHz	773-776	773.837500
	Voice	25KHz	853-856	774.337500
	Voice	25KHz	893-896	774.587500
Jasper	Voice	25KHz	189-192	770.187500
	Voice	25KHz	813-816	774.087500
La Porte	Voice	25KHz	33-36	769.212500
	Voice	25KHz	113-116	769.712500
	Voice	25KHz	309-312	770.937500
	Voice	25KHz	653-656	773.087500
Lake	Voice	25KHz	29-32	769.187500
	Voice	25KHz	145-148	769.912500
	Voice	25KHz	733-736	773.587500
	Voice	25KHz	853-856	774.337500
Marshall	Voice	25KHz	693-696	773.337500
	Voice	25KHz	733-736	773.587500
	Voice	25KHz	933-936	774.837500
Newton	Voice	25KHz	69-72	769.437500
	Voice	25KHz	109-112	769.687500
Porter	Voice	25KHz	269-272	770.687500
	Voice	25KHz	689-692	773.312500

	Voice 25KHz	769-772	773.812500	803.812500
	Voice 25KHz	889-892	774.562500	804.562500
	Voice 25KHz	929-932	774.812500	804.812500
Pulaski	Voice 25KHz	233-236	770.462500	800.462500
	Voice 25KHz	845-848	774.287500	804.287500
St. Joseph	Voice 25KHz	105-108	769.662500	799.662500
	Voice 25KHz	265-268	770.662500	800.662500
	Voice 25KHz	645-648	773.037500	803.037500
	Voice 25KHz	685-688	773.287500	803.287500
	Voice 25KHz	725-728	773.537500	803.537500
	Voice 25KHz	765-768	773.787500	803.787500
	Voice 25KHz	805-808	774.037500	804.037500
	Voice 25KHz	885-888	774.537500	804.537500
	Voice 25KHz	925-928	774.787500	804.787500
Starke	Voice 25KHz	73-76	769.462500	799.462500

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General Use

County Notation	Band	FCC Channel Number	Base Frequency	Mobile Frequency
Dane	Voice 25KHz	17-20	769.112500	799.112500
	Voice 25KHz	57-60	769.362500	799.362500
	Voice 25KHz	97-100	769.612500	799.612500
	Voice 25KHz	137-140	769.862500	799.862500
	Voice 25KHz	209-212	770.312500	800.312500
	Voice 25KHz	281-284	770.762500	800.762500
	Voice 25KHz	329-332	771.062500	801.062500
	Voice 25KHz	377-380	771.362500	801.362500
	Voice 25KHz	421-424	771.637500	801.637500
	Voice 25KHz	465-468	771.912500	801.912500
	Voice 25KHz	505-508	772.162500	802.162500
	Voice 25KHz	553-556	772.462500	802.462500
	Voice 25KHz	609-612	772.812500	802.812500
	Voice 25KHz	661-664	773.137500	803.137500
	Voice 25KHz	705-708	773.412500	803.412500
	Voice 25KHz	745-748	773.662500	803.662500
	Voice 25KHz	785-788	773.912500	803.912500
	Voice 25KHz	829-832	774.187500	804.187500
	Voice 25KHz	869-872	774.437500	804.437500
Dodge	Voice 25KHz	121-124	769.762500	799.762500
	Voice 25KHz	161-164	770.012500	800.012500
	Voice 25KHz	249-252	770.562500	800.562500
	Voice 25KHz	385-388	771.412500	801.412500
	Voice 25KHz	437-440	771.737500	801.737500
	Voice 25KHz	477-480	771.987500	801.987500
	Voice 25KHz	537-540	772.362500	802.362500

	Voice	25KHz	901-904	774.637500	804.637500
	Voice	25KHz	941-944	774.887500	804.887500
Jefferson	Voice	25KHz	41-44	769.262500	799.262500
	Voice	25KHz	81-84	769.512500	799.512500
	Voice	25KHz	337-340	771.112500	801.112500
	Voice	25KHz	401-404	771.512500	801.512500
	Voice	25KHz	525-528	772.287500	802.287500
	Voice	25KHz	581-584	772.637500	802.637500
	Voice	25KHz	621-624	772.887500	802.887500
Kenosha	Voice	25KHz	213-216	770.337500	800.337500
	Voice	25KHz	349-352	771.187500	801.187500
	Voice	25KHz	417-420	771.612500	801.612500
	Voice	25KHz	465-468	771.912500	801.912500
	Voice	25KHz	509-512	772.187500	802.187500
	Voice	25KHz	557-560	772.487500	802.487500
	Voice	25KHz	617-620	772.862500	802.862500
	Voice	25KHz	665-668	773.162500	803.162500
	Voice	25KHz	749-752	773.687500	803.687500
	Voice	25KHz	789-792	773.937500	803.937500
Milwaukee	Voice	25KHz	45-48	769.287500	799.287500
	Voice	25KHz	85-88	769.537500	799.537500
	Voice	25KHz	125-128	769.787500	799.787500
	Voice	25KHz	169-172	770.062500	800.062500
	Voice	25KHz	209-212	770.312500	800.312500
	Voice	25KHz	281-284	770.762500	800.762500
	Voice	25KHz	353-356	771.212500	801.212500
	Voice	25KHz	397-400	771.487500	801.487500
	Voice	25KHz	469-472	771.937500	801.937500
	Voice	25KHz	541-544	772.387500	802.387500
	Voice	25KHz	613-616	772.837500	802.837500
	Voice	25KHz	661-664	773.137500	803.137500
	Voice	25KHz	705-708	773.412500	803.412500
	Voice	25KHz	745-748	773.662500	803.662500
	Voice	25KHz	785-788	773.912500	803.912500
	Voice	25KHz	829-832	774.187500	804.187500
	Voice	25KHz	869-872	774.437500	804.437500
	Voice	25KHz	945-948	774.912500	804.912500
Ozaukee	Voice	25KHz	177-180	770.112500	800.112500
	Voice	25KHz	333-336	771.087500	801.087500
	Voice	25KHz	389-392	771.437500	801.437500
	Voice	25KHz	433-436	771.712500	801.712500
	Voice	25KHz	493-496	772.087500	802.087500
	Voice	25KHz	533-536	772.337500	802.337500
	Voice	25KHz	577-580	772.612500	802.612500
	Voice	25KHz	629-632	772.937500	802.937500
Racine	Voice	25KHz	669-672	773.187500	803.187500
	Voice	25KHz	13-16	769.087500	799.087500
	Voice	25KHz	241-244	770.512500	800.512500
	Voice	25KHz	297-300	770.862500	800.862500
	Voice	25KHz	365-368	771.287500	801.287500
	Voice	25KHz	449-452	771.812500	801.812500
	Voice	25KHz	529-532	772.312500	802.312500

	Voice	25KHz	585-588	772.662500	802.662500
	Voice	25KHz	625-628	772.912500	802.912500
	Voice	25KHz	837-840	774.237500	804.237500
	Voice	25KHz	877-880	774.487500	804.487500
Rock	Voice	25KHz	165-168	770.037500	800.037500
	Voice	25KHz	253-256	770.587500	800.587500
	Voice	25KHz	345-348	771.162500	801.162500
	Voice	25KHz	409-412	771.562500	801.562500
	Voice	25KHz	473-476	771.962500	801.962500
	Voice	25KHz	561-564	772.512500	802.512500
	Voice	25KHz	629-632	772.937500	802.937500
	Voice	25KHz	669-672	773.187500	803.187500
	Voice	25KHz	753-756	773.712500	803.712500
Walworth	Voice	25KHz	917-920	774.737500	804.737500
	Voice	25KHz	205-208	770.287500	800.287500
	Voice	25KHz	357-360	771.237500	801.237500
	Voice	25KHz	425-428	771.662500	801.662500
	Voice	25KHz	485-488	772.037500	802.037500
	Voice	25KHz	545-548	772.412500	802.412500
	Voice	25KHz	825-828	774.162500	804.162500
	Voice	25KHz	905-908	774.662500	804.662500
Washington	Voice	25KHz	201-204	770.262500	800.262500
	Voice	25KHz	293-296	770.837500	800.837500
	Voice	25KHz	361-364	771.262500	801.262500
	Voice	25KHz	445-448	771.787500	801.787500
	Voice	25KHz	501-504	772.137500	802.137500
	Voice	25KHz	549-552	772.437500	802.437500
	Voice	25KHz	593-596	772.712500	802.712500
	Voice	25KHz	637-640	772.987500	802.987500
	Voice	25KHz	821-824	774.137500	804.137500
Waukesha	Voice	25KHz	53-56	769.337500	799.337500
	Voice	25KHz	93-96	769.587500	799.587500
	Voice	25KHz	133-136	769.837500	799.837500
	Voice	25KHz	217-220	770.362500	800.362500
	Voice	25KHz	257-260	770.612500	800.612500
	Voice	25KHz	321-324	771.012500	801.012500
	Voice	25KHz	373-376	771.337500	801.337500
	Voice	25KHz	413-416	771.587500	801.587500
	Voice	25KHz	457-460	771.862500	801.862500
	Voice	25KHz	513-516	772.212500	802.212500
	Voice	25KHz	565-568	772.537500	802.537500
	Voice	25KHz	605-608	772.787500	802.787500
	Voice	25KHz	677-680	773.237500	803.237500
	Voice	25KHz	717-720	773.487500	803.487500
	Voice	25KHz	757-760	773.737500	803.737500
	Voice	25KHz	797-800	773.987500	803.987500
	Voice	25KHz	861-864	774.387500	804.387500
	Voice	25KHz	913-916	774.712500	804.712500

State License

County Notation	Band	FCC Channel Number	Base Frequency	Mobile Frequency
Dane	Voice 25KHz	113-116	769.712500	799.712500
	Voice 25KHz	313-316	770.962500	800.962500
	Voice 25KHz	653-656	773.087500	803.087500
	Voice 25KHz	693-696	773.337500	803.337500
	Voice 25KHz	765-768	773.787500	803.787500
	Voice 25KHz	805-808	774.037500	804.037500
	Voice 25KHz	845-848	774.287500	804.287500
	Voice 25KHz	925-928	774.787500	804.787500
Dodge	Voice 25KHz	145-148	769.912500	799.912500
	Voice 25KHz	193-196	770.212500	800.212500
	Voice 25KHz	893-896	774.587500	804.587500
Jefferson	Voice 25KHz	153-156	769.962500	799.962500
	Voice 25KHz	233-236	770.462500	800.462500
Kenosha	Voice 25KHz	109-112	769.687500	799.687500
	Voice 25KHz	649-652	773.062500	803.062500
	Voice 25KHz	729-732	773.562500	803.562500
Milwaukee	Voice 25KHz	33-36	769.212500	799.212500
	Voice 25KHz	73-76	769.462500	799.462500
	Voice 25KHz	149-152	769.937500	799.937500
	Voice 25KHz	313-316	770.962500	800.962500
	Voice 25KHz	653-656	773.087500	803.087500
	Voice 25KHz	725-728	773.537500	803.537500
	Voice 25KHz	765-768	773.787500	803.787500
	Voice 25KHz	805-808	774.037500	804.037500
	Voice 25KHz	845-848	774.287500	804.287500
	Voice 25KHz	885-888	774.537500	804.537500
Ozaukee	Voice 25KHz	925-928	774.787500	804.787500
	Voice 25KHz	305-308	770.912500	800.912500
Racine	Voice 25KHz	813-816	774.087500	804.087500
	Voice 25KHz	229-232	770.437500	800.437500
	Voice 25KHz	269-272	770.687500	800.687500
	Voice 25KHz	693-696	773.337500	803.337500
Rock	Voice 25KHz	933-936	774.837500	804.837500
	Voice 25KHz	29-32	769.187500	799.187500
	Voice 25KHz	305-308	770.912500	800.912500
Walworth	Voice 25KHz	889-892	774.562500	804.562500
	Voice 25KHz	69-72	769.437500	799.437500
Washington	Voice 25KHz	769-772	773.812500	803.812500
	Voice 25KHz	65-68	769.412500	799.412500
	Voice 25KHz	773-776	773.837500	803.837500
Waukesha	Voice 25KHz	853-856	774.337500	804.337500
	Voice 25KHz	25-28	769.162500	799.162500
	Voice 25KHz	105-108	769.662500	799.662500

Voice	25KHz	185-188	770.162500	800.162500
Voice	25KHz	645-648	773.037500	803.037500
Voice	25KHz	685-688	773.287500	803.287500
Voice	25KHz	733-736	773.587500	803.587500

700 MHz BAND PLAN per Second R&O in PS Docket 06-229

960 Narrowband Base Channels (6.25 kHz each, aggregate to 25 kHz)

769 MHz	772 MHz
772 MHz	775 MHz
775 MHz	
778 MHz	
781 MHz	
784 MHz	
787 MHz	
790 MHz	
793 MHz	
796 MHz	
799 MHz	
802 MHz	
805 MHz	
808 MHz	
811 MHz	
814 MHz	
817 MHz	
820 MHz	
823 MHz	
826 MHz	
829 MHz	
832 MHz	
835 MHz	
838 MHz	
841 MHz	
844 MHz	
847 MHz	
850 MHz	
853 MHz	
856 MHz	
859 MHz	
862 MHz	
865 MHz	
868 MHz	
871 MHz	
874 MHz	
877 MHz	
880 MHz	
883 MHz	
886 MHz	
889 MHz	
892 MHz	
895 MHz	
898 MHz	
901 MHz	
904 MHz	
907 MHz	
910 MHz	
913 MHz	
916 MHz	
919 MHz	
922 MHz	
925 MHz	
928 MHz	
931 MHz	
934 MHz	
937 MHz	
940 MHz	
943 MHz	
946 MHz	
949 MHz	
952 MHz	
955 MHz	
958 MHz	
961 MHz	
964 MHz	
967 MHz	
970 MHz	
973 MHz	
976 MHz	
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2164 MHz	
2167 MHz	
2170 MHz	
2173 MHz	
2176 MHz	
2179 MHz	
2182 MHz	
2185 MHz	
2188 MHz	
2191 MHz	
2194 MHz	
2197 MHz	
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2602 MHz	

960 Narrowband Mobile Channels (6.25 kHz each, aggregate to 25 kHz)

799 MHz																				802 MHz																			
1361	1281	1201	1121	1041	961																1441	1521	1601	1681	1761	1841	1921	2001	2081	2161									
1362	1282	1202	1122	1042	962																1442	1522	1602	1682	1762	1842	1922	2002	2082	2162									
1363	1283	1203	1123	1043	963																1443	1523	1603	1683	1763	1843	1923	2003	2083	2163									
1364	1284	1204	1124	1044	964																1444	1524	1604	1684	1764	1844	1924	2004	2084	2164									
1365	1285	1205	1125	1045	965																1445	1525	1605	1685	1765	1845	1925	2005	2085	2165									
1366	1286	1206	1126	1046	966																1446	1526	1606	1686	1766	1846	1926	2006	2086	2166									
1367	1287	1207	1127	1047	967																1447	1527	1607	1687	1767	1847	1927	2007	2087	2167									
1368	1288	1208	1128	1048	968																1448	1528	1608	1688	1768	1848	1928	2008	2088	2168									
1369	1289	1209	1129	1049	969																1449	1529	1609	1689	1769	1849	1929	2009	2089	2169									
1370	1290	1210	1130	1050	970																1450	1530	1610	1690	1770	1850	1930	2010	2090	2170									
1371	1291	1211	1131	1051	971																1451	1531	1611	1691	1771	1851	1931	2011	2091	2171									
1372	1292	1212	1132	1052	972																1452	1532	1612	1692	1772	1852	1932	2012	2092	2172									
1373	1293	1213	1133	1053	973																1453	1533	1613	1693	1773	1853	1933	2013	2093	2173									
1374	1294	1214	1134	1054	974																1454	1534	1614	1694	1774	1854	1934	2014	2094	2174									
1375	1295	1215	1135	1055	975																1455	1535	1615	1695	1775	1855	1935	2015	2095	2175									
1376	1296	1216	1136	1056	976																1456	1536	1616	1696	1776	1856	1936	2016	2096	2176									
1377	1297	1217	1137	1057	977																1457	1537	1617	1697	1777	1857	1937	2017	2097	2177									
1378	1298	1218	1138	1058	978																1458	1538	1618	1698	1778	1858	1938	2018	2098	2178									
1379	1299	1219	1139	1059	979																1459	1539	1619	1699	1779	1859	1939	2019	2099	2179									
1380	1300	1220	1140	1060	980																1460	1540	1620	1700	1780	1860	1940	2020	2100	2180									
1381	1301	1221	1141	1061	981																1461	1541	1621	1701	1781	1861	1941	2021	2101	2181									
1382	1302	1222	1142	1062	982																1462	1542	1622	1702	1782	1862	1942	2022	2102	2182									
1383	1303	1223	1143	1063	983																1463	1543	1623	1703	1783	1863	1943	2023	2103	2183									
1384	1304	1224	1144	1064	984																1464	1544	1624	1704	1784	1864	1944	2024	2104	2184									
1385	1305	1225	1145	1065	985																1465	1545	1625	1705	1785	1865	1945	2025	2105	2185									
1386	1306	1226	1146	1066	986																1466	1546	1626	1706	1786	1866	1946	2026	2106	2186									
1387	1307	1227	1147	1067	987																1467	1547	1627	1707	1787	1867	1947	2027	2107	2187									
1388	1308	1228	1148	1068	988																1468	1548	1628	1708	1788	1868	1948	2028	2108	2188									
1389	1309	1229	1149	1069	989																1469	1549	1629	1709	1789	1869	1949	2029	2109	2189									
1390	1310	1230	1150	1070	990																1470	1550	1630	1710	1790	1870	1950	2030	2110	2190									
1391	1311	1231	1151	1071	991																1471	1551	1631	1711	1791	1871	1951	2031	2111	2191									
1392	1312	1232	1152	1072	992																1472	1552	1632	1712	1792	1872	1952	2032	2112	2192									
1393	1313	1233	1153	1073	993																1473	1553	1633	1713	1793	1873	1953	2033	2113	2193									
1394	1314	1234	1154	1074	994																1474	1554	1634	1714	1794	1874	1954	2034	2114	2194									
1395	1315	1235	1155	1075	995																1475	1555	1635	1715	1795	1875	1955	2035	2115	2195									
1396	1316	1236	1156	1076	996																1476	1556	1636	1716	1796	1876	1956	2036	2116	2196									
1397	1317	1237	1157	1077	997																1477	1557	1637	1717	1797	1877	1957	2037	2117	2197									
1398	1318	1238	1158	1078	998																1478	1558	1638	1718	1798	1878	1958	2038	2118	2198									
1399	1319	1239	1159	1079	999																1479	1559	1639	1719	1799	1879	1959	2039	2119	2199									
1400	1320	1240	1160	1080	1000																1480	1560	1640	1720	1800	1880	1960	2040	2120	2200									
1401	1321	1241	1161	1081	1001																1481	1561	1641	1721	1801	1881	1961	2041	2121	2201									
1402	1322	1242	1162	1082	1002																1482	1562	1642	1722	1802	1882	1962	2042	2122	2202									
1403	1323	1243	1163	1083	1003																1483	1563	1643	1723	1803	1883	1963	2043	2123	2203									
1404	1324	1244	1164	1084	1004																1484	1564	1644	1724	1804	1884	1964	2044	2124	2204									
1405	1325	1245	1165	1085	1005																1485	1565	1645	1725	1805	1885	1965	2045	2125	2205									
1406	1326	1246	1166	1086	1006																1486	1566	1646	1726	1806	1886	1966	2046	2126	2206									
1407	1327	1247	1167	1087	1007																1487	1567	1647	1727	1807	1887	1967	2047	2127	2207									
1408	1328	1248	1168	1088	1008																1488	1568	1648	1728	1808	1888	1968	2048	2128	2208									
1409	1329	1249	1169	1089	1009																1489	1569	1649	1729	1809	1889	1969	2049	2129	2209									
1410	1330	1250	1170	1090	1010																1490	1570	1650	1730	1810	1890	1970	2050	2130	2210									
1411	1331	1251	1171	1091	1011																1491	1571	1651	1731	1811	1891	1971	2051	2131	2211									
1412	1332	1252	1172	1092	1012																1492	1572	1652	1732	1812	1892	1972	2052	2132	2212									
1413	1333	1253	1173	1093	1013																1493	1573	1653	1733	1813	1893	1973	2053	2133	2213									
1414	1334	1254	1174	1094	1014																1494	1574	1654	1734	1814	1894	1974	2054	2134	2214									
1415	1335	1255	1175	1095	1015																1495	1575	1655	1735	1815	1895	1975	2055	2135	2215									
1416	1336	1256	1176	1096	1016																1496	1576	1656	1736	1816	1896	1976	2056	2136	2216									

25 APPENDIX L - AMPLE NOTIFICATIONS BY RPC TO SECONDARY TV STATIONS

NOTIFICATION OF COMMENCEMENT OF PLANNING PROCESS

Secondary LPTV and/or TV Translator Station and Call Sign Address

To Whom It May Concern:

This letter serves as formal notification of the commencement of the 700 MHz Regional Planning process for Region 54, Southern Lake Michigan. By this letter, (TV Station Call sign/location) is put on notice that its operations are secondary to future, primary public safety land mobile operations. Low power TV stations and TV translators may not cause interference to public safety operations and must accept any interference they might receive from those operations.¹¹ You will be notified when Region 54's 700 MHz Plan has been approved by the FCC and again as public safety systems begin to be implemented in the band.

Sincerely,

William J Carter
Regional Chairperson Region 54
111 E. Illinois
Morris, IL 60455
Email: wizard61@hotmail.com

¹¹ The Report and Order on ET Docket No. 97-157 (FCC 97-421) for the "Reallocation of Television Channels 60-69, the 746-806 MHz Band," clearly defined Land Mobile operations as a "primary service" and that Low power TV and TV translator operations are secondary to all primary services in this band (see paragraphs 14 and 25-31).

NOTIFICATION OF FCC APPROVAL OF 700 MHz REGIONAL PLAN

Secondary LPTV and/or TV Translator Station and Call Sign Address

To Whom It May Concern:

This letter serves as formal notification of the FCC approval of the 700 MHz Regional Planning for Region 54 Southern Lake Michigan.. By this letter, (TV Station Call sign/location) is reminded that its operations are secondary to future, primary public safety land mobile operations. Low power TV stations and TV translators may not cause interference to public safety operations and must accept any interference they might receive from those operations.¹ You will be notified when public safety systems have been implemented in the band.

Sincerely,

William J Carter
Regional Chairperson Region 54
111 E. Illinois
Morris, IL 60455
Email: wizard61@hotmail.com

¹ The Report and Order on ET Docket No. 97-157 (FCC 97-421) for the "Reallocation of Television Channels 60-69, the 746-806 MHz Band," clearly defined Land Mobile operations as a "primary service" and that Low power TV and TV translator operations are secondary to all primary services in this band (see paragraphs 14 and 25-31).

**NOTIFICATION OF IMPLEMENTATION OF
700 MHz PUBLIC SAFETY SYSTEM**

Secondary LPTV and/or TV Translator Station and Call Sign Address

To Whom It May Concern:

This letter serves as formal notification of the implementation of a public safety land mobile communications system located in (location/call sign). By this letter, (TV Station Call sign/location) is reminded that its operations are secondary to this primary public safety land mobile operation. Low power TV stations and TV translators may not cause interference to this public safety system and must accept any interference they might receive from these operations.¹

Sincerely,

William J Carter
Regional Chairperson Region 54
111 E. Illinois
Morris, IL 60455
Email: wizard61@hotmail.com

¹ The Report and Order on ET Docket No. 97-157 (FCC 97-421) for the "Reallocation of Television Channels 60-69, the 746-806 MHz Band," clearly defined Land Mobile operations as a "primary service" and that Low power TV and TV translator operations are secondary to all primary services in this band (see paragraphs 14 and 25-31).